a W. R. C. Smith publication

FIFTY CENTS

Textile Industries

Formerly "COTTON"

OCTOBER 1960

WHAT YOU'LL SEE IN GREENVILLE
26-page word-picture preview of the 1960 Southern Textile Exposition
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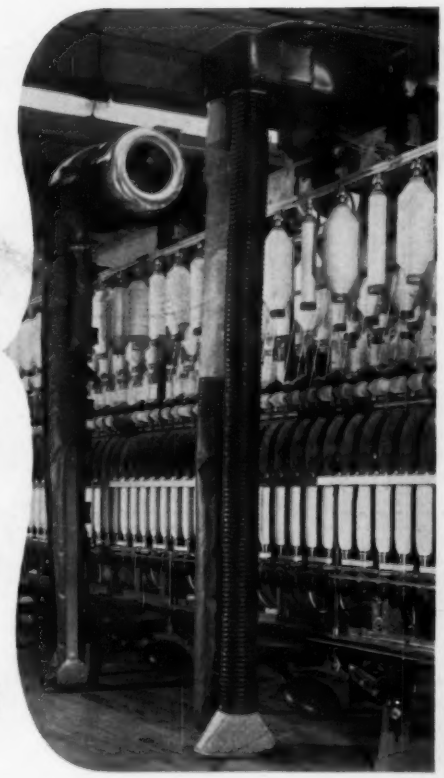
Get peak cleaning efficiency on frames, underframes and alley areas with

COMPLETE COVERAGE FEATURES

of CROSS-JET FRAME CLEANER

and VACU-PAK FLOOR SWEEPER with automatic "Stop and Go" protection



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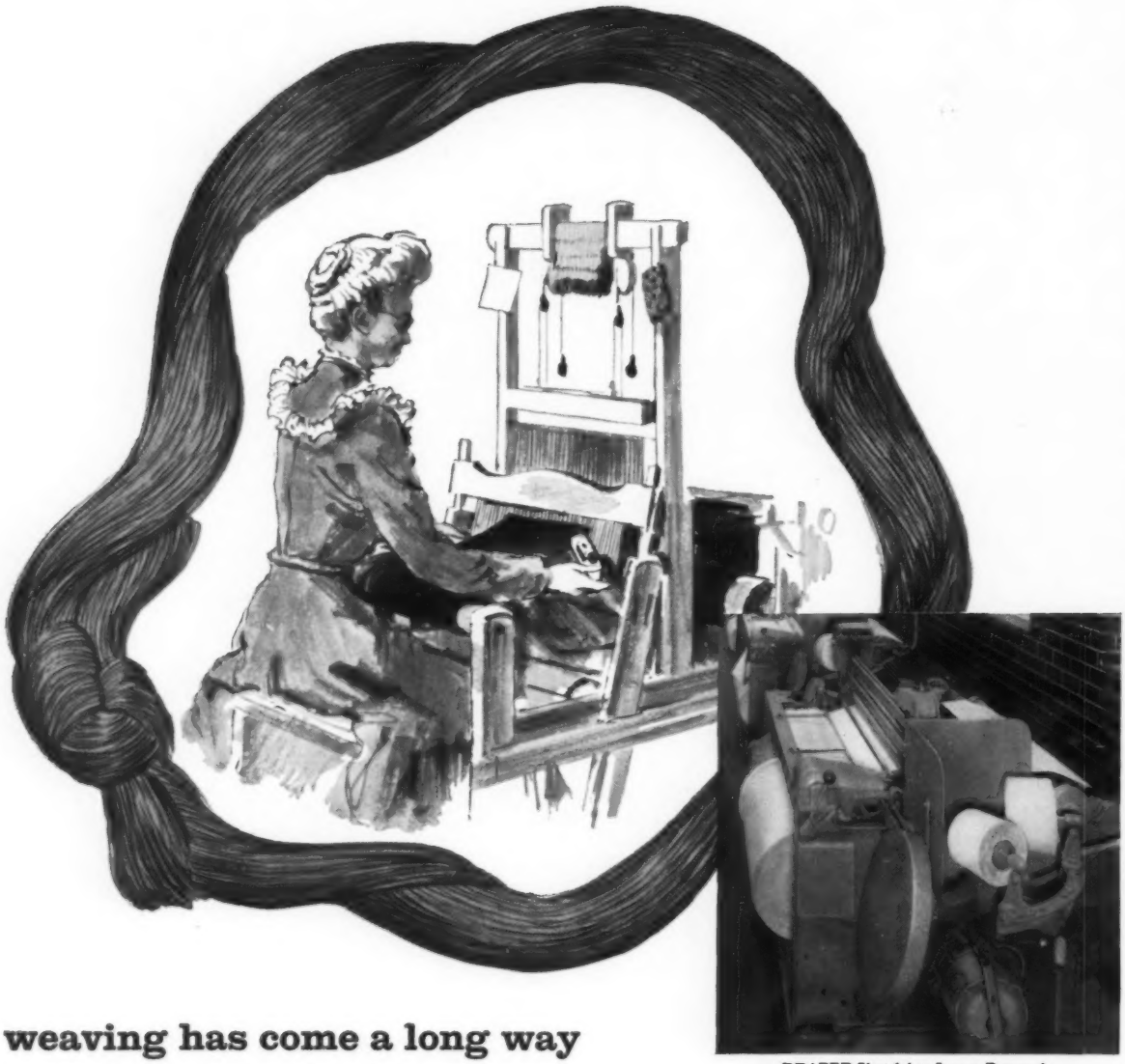

DRAPER Shuttleless Looms Powered by DIEHL Power Transmitters.

weaving has come a long way since grandma's day

The old way was a good way. Diligent, almost painful attention to detail, saw to it that each thread was expertly placed and woven. Yes, doing it the old way resulted in quality, almost break-free fabrics . . . but it was so laboriously slow.

The spectacularly new, compact, low silhouette shuttleless looms, recently introduced by Draper Corporation, Hopedale, Massachusetts, are shown on the line at Pepperell Lindale. Among the advantages claimed for the new design looms are . . . increased production . . . improved quality . . . economical operation, and lower cost of maintenance.

When DIEHL entered the field and pioneered the Power Transmitter for textile looms it soon became evident that Speed as well as Quality could be built into weaving. Today DIEHL Power Transmitters are used by more textile mills than any other type drive.

Over the years, trouble-free DIEHL Transmitters have taken the skill that was in grandma's fingers and have animated it with DIEHL job-engineered power. The result—products that embody the old "hand made" *spirit*, manufactured with the *speed* required by cost conscious, modern day mills.

*A Trademark of DIEHL MANUFACTURING COMPANY

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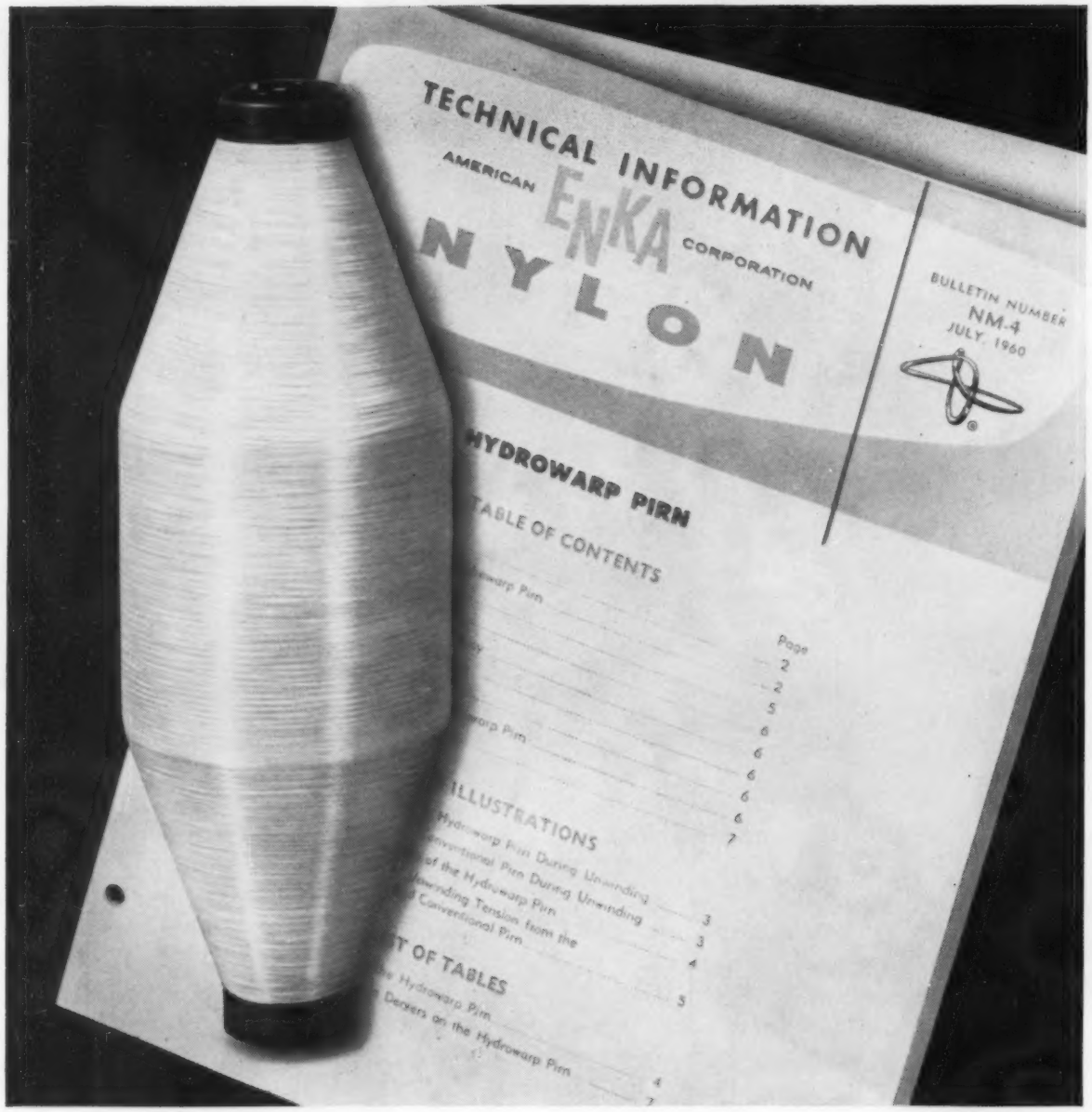
THE JSD . . .
FOR 24 FEED
YARDGOODS JACQUARD PRODUCTION
WITH UNLIMITED PATTERN RANGE For yardgoods production of Jacquard knit fabrics . . . the Model JSD . . . 24 feeds . . . 24 Jacquard automats . . . 4 color yarn changers . . . 30″ diameter . . . up to 20 needles per inch. Piqué . . . Twill Back . . . Blister . . . Rib . . . Tuck . . . Two-Three-Four Color Welt Back Fabrics . . . Unlimited Pattern Range. Ideal for high production of unique fabrics. Ask for complete details on this new model, the JSD.

WILDMAN JACQUARD

WILDMAN JACQUARD CO. • 1210 Stanbridge St. • Norristown, Penna. • Manufacturers of HEMPHILL BANNER Knitting Machines

A subsidiary of Draper Corporation, Hopedale, Mass.



Reduce your operating costs with the...

NEW ENKA NYLON HYDROWARP PIRN

HERE is another technical achievement by ENKA research to help you lower your operating costs—the new ENKA nylon Hydrowarp pirn.

Developed for use in textile processes in which low and uniform tensions are needed, the Enka Hydrowarp pirn has been included in our program of Technical Information Bulletins. This bulletin will give you full details on how our new nylon Hydrowarp pirn:

- **Increases net yarn weight per pirn**
- **Improves unwinding tensions**
- **Reduces your operating costs in texturing, warping, knitting, and throwing**

The Hydrowarp pirn package is designed to unwind the yarn from *a parallel plane*. Thus—the tension during the unwinding is exceedingly uniform. The barrel of the pirn remains concealed and does not come in contact with the yarn until the last few wraps on the package.

Send for your copy of Enka Technical Information Bulletin NM-4 on the nylon Hydrowarp pirn TODAY. Write Marketing Technical Dept., American Enka Corporation, Enka, N. C.

American ENKA Corporation, Enka, N. C. • Producer of nylon • rayon • yarns • fibers
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Textile Industries

Formerly "COTTON"

OCTOBER 1960 VOL. 124 NO. 10

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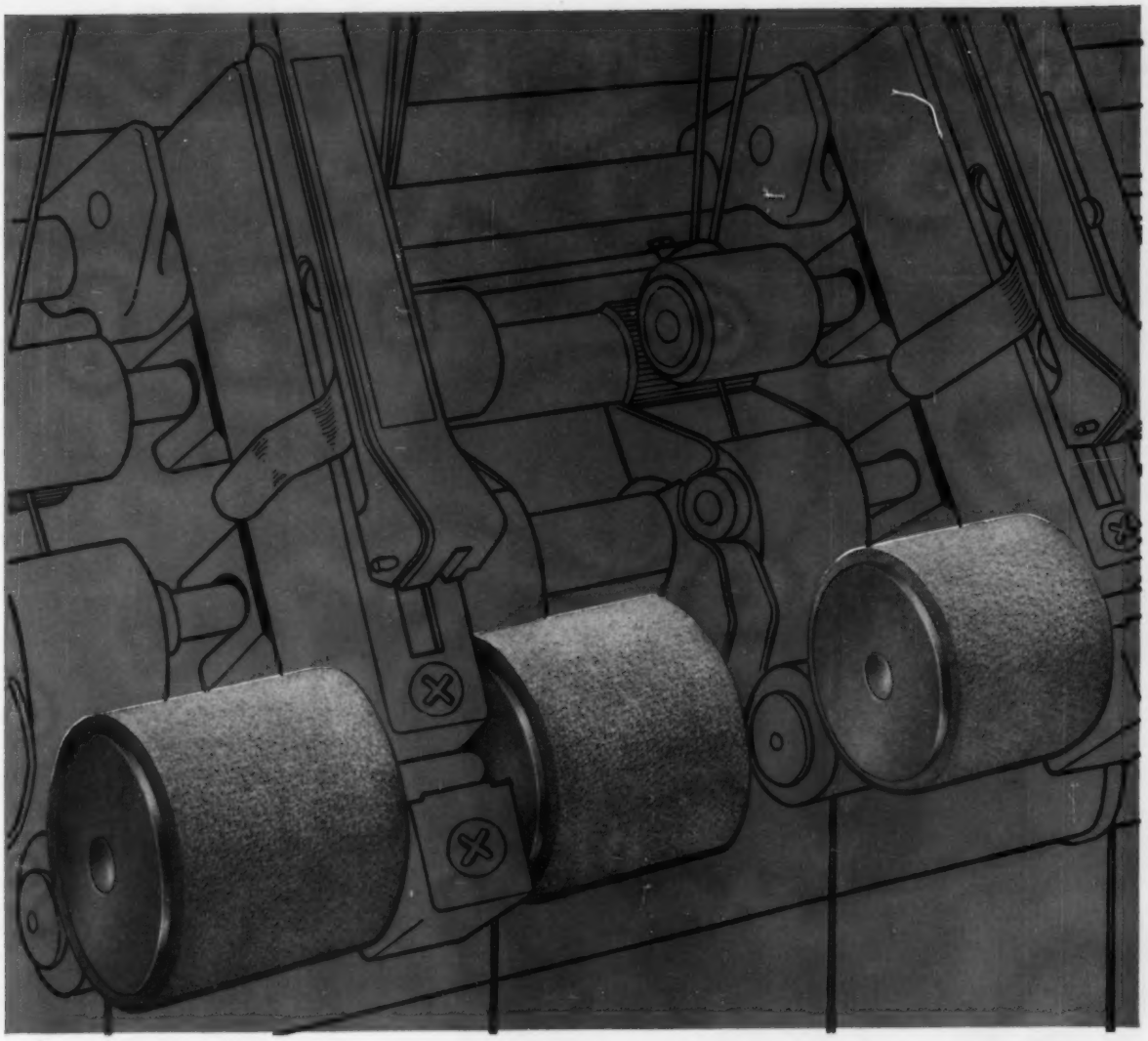

These clearer covers can save you 50%

Better cleaning . . . faster picking . . . much longer life: you get all these money-saving benefits when you switch to Accotex NK-770, an expanded-rubber cover for revolving clearers.

NK-770 covers clean efficiently. In many mills, these covers make it possible to lengthen picking intervals and reduce picking crews. NK-770 covers cost no more than conventional materials; and indications are that they will last at least three times as long.

All these economies can add up to a 50% saving in clearer picking and maintenance costs. Your Armstrong man will help you set up a test of NK-770 covers on your frames. Call him or write Armstrong Cork Co., 6910 Ivy Street, Lancaster, Penna.

Armstrong TEXTILE PRODUCTS

1860-1960 Beginning our second century of progress

WHEN THE RECEPTACLES ARE KENNETT, PROCESSING COSTS GO DOWN! . . .

The reasons are simple. Kennett Receptacles handle delicate yarns and fabrics more gently—cut loss from damaged yarns and fabrics. Kennett Receptacles last longer—save on replacement costs. And Kennett Receptacles are easier to handle—speed your processing.

Kennett Receptacles can be slammed, banged, dropped and manhandled in a mill for years. Yet their glossy-smooth surface doesn't crack, splint, crush or splinter. They're made of tough, lightweight National Vulcanized Fibre, a *plastic* that has never been equalled for containers in the textile industry.

Standard Kennett Receptacles are available in a huge range of styles and sizes, covering every ordinary need in textile processing. Special requirements are often filled with only a slight modification of a basic Kennett style. And all Kennett products are backed by National's years of experience and proved dependability. For full information contact your nearest National sales office. Or write direct for our full line folder. Address Dept. W-10.

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RECEPTACLES BY
NATIONAL
VULCANIZED FIBRE CO.
WILMINGTON 99, DELAWARE

SHORTS & REMNANTS

Fiber Chart Popular

"May we please have two copies of your Man Made Fibers chart which was included in the August issue of TEXTILE INDUSTRIES . . . I am sure that this service must be appreciated and used by a large proportion of your readers."

P. W. MOORE
Vice-pres., Mfg.
Riverside Yarns Ltd.
Galt, Ont.

". . . we find the synthetic fiber chart extremely interesting. In the past we have used other charts for our course work, but we feel that this one is more complete and more suitable for our use. We anticipate that we will need a minimum of 150 and a maximum of 200 for the coming school year . . ."

D. S. HAMBY
Prof. of Textiles
N. C. State College
Raleigh, N. C.

Others requesting from 1 to 1,000 (!) copies of the chart included **B. H. Nickles,** head textile engr., Callaway Mills Co., LaGrange, Ga.; **Edmund F. Vesely,** tech, dir., Arkwright Finishing Div., Fiskeville, R. I.; **S. H. Sherman,** div. mgr., U. S. Rubber Co., Winnsboro, S. C.; **Robert C. Wilkie,** vice-pres., Ludlow Textile Products, Needham Heights, Mass.; **G. N. Davidson,** West Point (Ga.) Mfg. Co.; **James J. Bates,** prod. dir., Lumite Div., Chicopee Mills, Inc., NYC; **J. V. Brunza,** mgr., The Duplan Corp., Kingston, Pa.; **I. C. Brooks,** mgr. ind. prod. dept., Atlas Asbestos Co. Ltd., Montreal, P. Q.; **A. Goldfarb,** United Merch. & Mfrs., Inc., NYC: **Jack Yelton,** QC, Laurel Mills, Inc., Rutherfordton, N. C.; **K. B. Milnes,** Bond Narrow Fabric Co., Inc., Philadelphia, Pa.; **William H. Carroll** and **Vernon Baker,** Amerotron Co., NYC; **D. S. Nichols,** tech. rep., Asbestos, U. S. Rubber Co., NYC; **John W. Groesbeck,** Callaway Mills, Inc., NYC; **F. Luft,** PA, Dominion Rubber Co. Ltd., Textile Div., Kitchener, Ont.; **Walter M. Hasen,** Milliken Woolens, Inc., NYC; **G. W. Stow,** res. dept., English Sewing Cotton Co. Ltd., Manchester,

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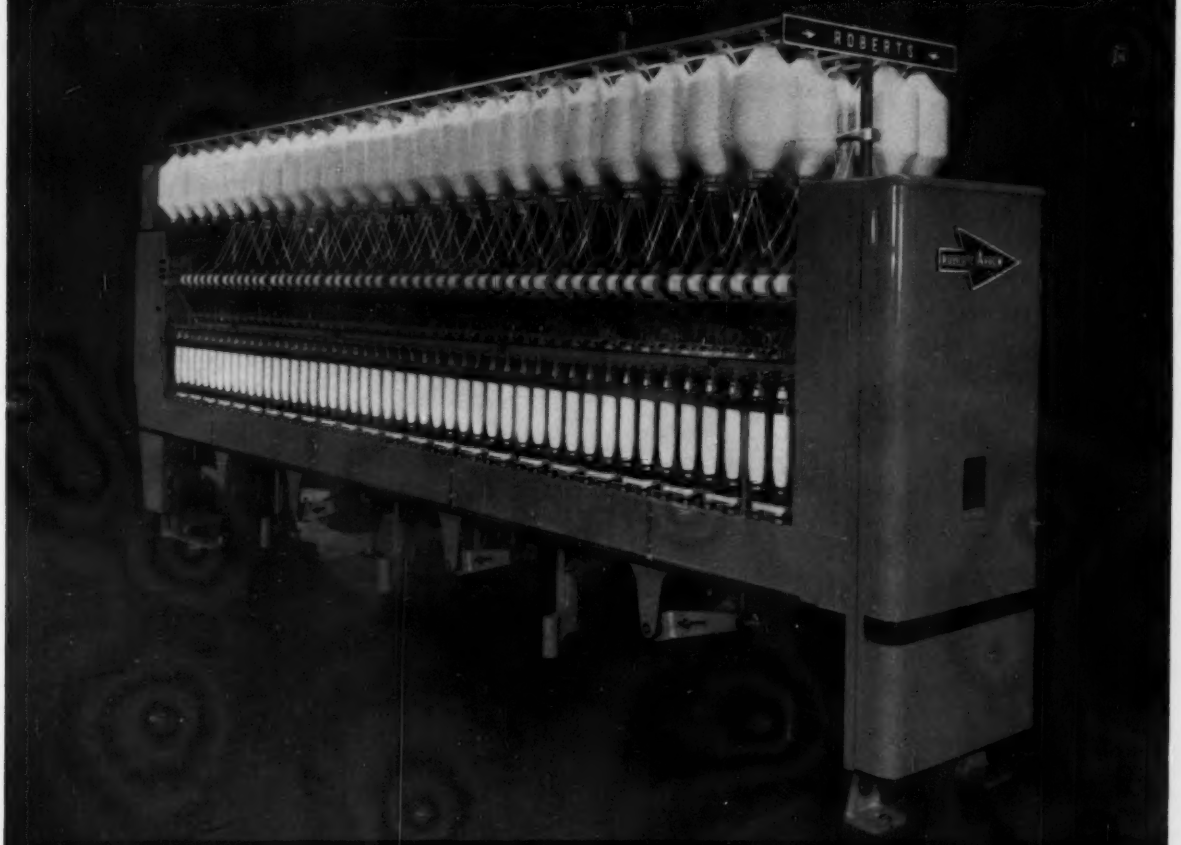
ROBERTS ARROW SPINNING



Versatility For All Yarn Counts !

Arrow Spinning Frames are available to run all yarn counts from 2's to 120's. More than 1000 Arrow Frames are in service at large and small mill organizations in the U. S. A.

Several examples are provided at the right which demonstrate the versatility of Arrow Spinning.

The newly refined Arrow offers greatest value in high speed operation, bigger packages, dependable performance, low initial cost, and maintenance-free operation. Arrow Spinning is available for both cotton and worsted systems.

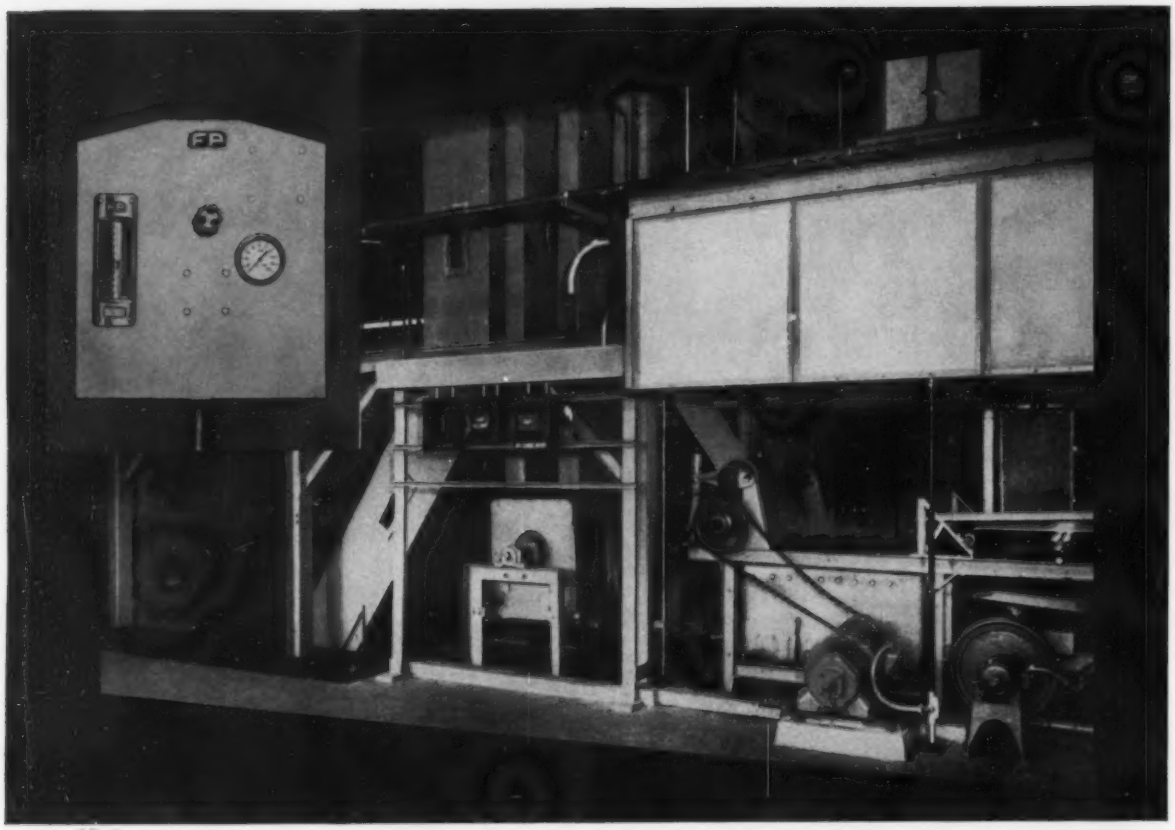
Roberts Technical Service backs up every Roberts installation with intelligent understanding of the mill's requirements and ambitions.

THREE MILLS RUNNING ARROW FRAMES ON A WIDE RANGE OF YARN NUMBERS

- An independent producer of Osnaburgs and Corduroys runs 62 Arrow Frames with 20,000 spindles making 3.25's to 8.25's warp spun filling yarn on 3" rings and 12" bobbins; 8's to 21's warp yarn on 3" and 2½" rings and 12" bobbins; and 14.5's to 22.5's direct spun filling yarn on 1-9/16" rings and 8¾" quills.
- A major mill group uses 50 Arrow Frames with 16,000 spindles to produce 80's to 100's combed long fiber cotton yarn for fine broadcloths on 1¾" rings and 10" bobbins.
- A small carded knitting yarn mill uses 20 Arrow Frames with 5040 spindles to run 26's yarn on 2¼" rings and 11" bobbins.

ROBERTS COMPANY

SANFORD, NORTH CAROLINA



New bleaching idea from Pennsalt helps cut your chemical costs!

Pennsalt's latest technical service aid to textile finishers is a new, low-cost process* for introducing chlorine gas directly into continuous peroxide bleaching systems. The process adds chlorine to your caustic desizer, caustic saturator, and/or to the washer preceding the peroxide saturator. The result—*substantial chemical savings.*

The Pennsalt chlorination process is simple, yet effective . . . requires no expensive additional finishing equipment . . . no complex testing procedures . . . no additional operators. The simple, inexpensive control equipment pays for itself quickly through reduced chemical costs.

Pennsalt's textile finishing service can help you reduce finishing costs through direct gas chlorination. Let us give you a thorough demonstration in your mill at no charge. Ask your Pennsalt representative for details, or write Industrial Chemicals Division, PENNSALT CHEMICALS CORPORATION, 3 Penn Center, Philadelphia 2, Pa.

To get the most from your finishing operations ask for Pennsalt textile service. Assistance like this is only a part of the complete, personalized technical service available from Pennsalt. And for the most from your chemicals be sure to ask for Pennsalt caustic soda, chlorine, hydrogen peroxide, ammonium chloride, ferric chloride and surfactants.

*Patent applied for

See our complete listing in Chemical Materials Catalog

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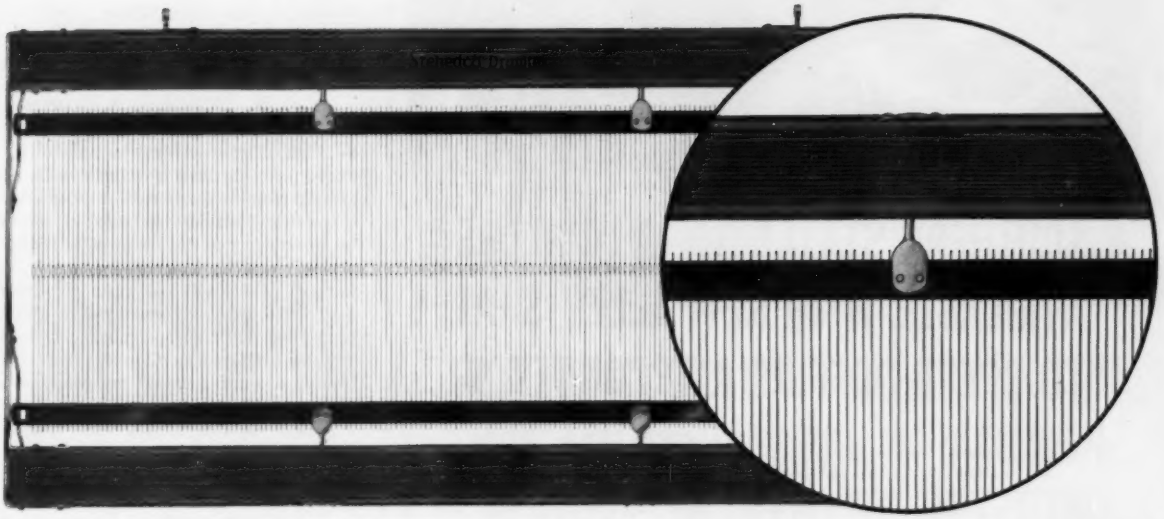
Pennsalt Chemicals
ESTABLISHED 1850

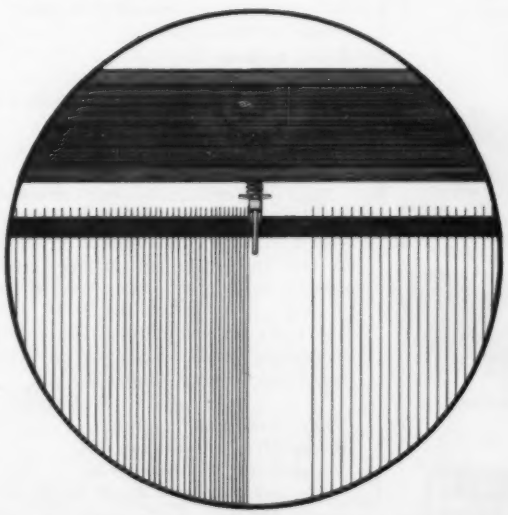
Stehedco

DRAWTEX HARNESS

IMPROVES EFFICIENCY AND QUALITY WITH PERFECT HEDDLE SPACING



Are your weavers and fixers handicapped by bunching of heddles at rod supports, as illustrated below?



Stehedco Drawtex rod supports allow completely free movement of the heddles. There is no obstruction to keep the heddles from finding their natural position on the rod. Therefore, warp streaks from heddle bunching are completely eliminated and down time to correct this condition is a thing of the past.

This is only one of many Stehedco Drawtex advantages. Ask our sales engineers to tell you all about them.

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PHILADELPHIA 32, PA.
SOUTHERN SHUTTLE DIV.
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Southern

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Atlanta, Ga. • Textile Supply Co., Dallas, Texas • Albert R. Breen, Chicago, Ill.

SOUTHERN STATES LARGE COILERS AVAILABLE WITH NEW ALLEY-SKAT TO SPEED DOFFING AND CONVEYING

Large-size Southern States Coilers are now available with ALLEY-SKAT, the simplest, most economical can conveyor system ever developed. The problem of doffing and moving heavier cans may now be solved with a low capital outlay.

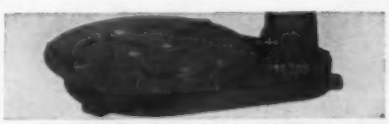
For example, suppose you are equipping your mill with large Southern States Coilers: if you decide to employ ALLEY-SKATS, you can specify that special cantable adapter plates be included at no extra cost. The only additional charge is for the can latches and ALLEY-SKAT dollies, which are available at nominal cost.

The latches and dollies are easily and quickly installed on any standard can.

The ALLEY-SKAT is strictly optional equipment. However, if you are concerned with handling large cans, as most mill men are, we suggest that you investigate the ALLEY-SKAT.

Get full information from your Southern States representative or write for Bulletin 501.

ALLEY-SKAT Dolly mounts to inside of can rim. Dollies are made of finest materials, including heavy-duty mill-type casters.



Cantable adapter plate is available as standard equipment on Southern States Coilers at no extra charge.

Doffing of large, tightly packed cans is quickly and easily accomplished. No lifting required.

SOUTHERN STATES
EQUIPMENT CORP.
HAMPTON, GEORGIA

SHORTS & REMNANTS

(from page 6)

England; **C. U. Peterson,** Robison Co., Inc., NYC; **J. A. Pinatel, Jr.,** Pinatel Piece Dye Works Ltd., Joliette, P. Q.; plus officials from most of the larger fiber producers: Chemstrand Corp.; Air Reduction Chemical Co.; Tennessee Eastman Co.; E. I. du Pont de Nemours & Co.; Celanese Fibers Co.; The Dow Chemical Co.; Du Pont of Canada Ltd.; Industrial Rayon Corp.; Courtaulds (Canada) Ltd.; and others. There are still a few copies of the chart available, which are free on the basis of one per reader as long as the supply lasts. Write

The Editors
TEXTILE INDUSTRIES
806 Peachtree St., N. E.
Atlanta 8, Georgia

► Alas! The soothing sound of tobacco juice hitting a spitoon will no longer ring through the halls of textile selling houses—at least it won't be heard in the new offices of Parker Wilder & Co., which recently moved to 111 W. 40th St. in New York. The spitoons were taken along from the old offices (along with a wooden wall telephone), but the clean-up man refused to touch the things, so now they've gone the way of high button shoes, eye shades, and buggy whips.

Wants Pen Pals

"I was employed by Lane Cotton Mills in New Orleans . . . I still enjoy my TI very much, for I get to know the whereabouts of some of my friends . . . would like to hear from them."

FLOYD J. MORAN
Floyd J. Moran Grocery
Route 2, Box 72
Bunkie, Louisiana

That's our motto—Anything to be of service to a reader.

Tex Taking Hold?

". . . we would be very grateful to receive six of these tex conversion charts for distribution to some of our staff who are directly concerned with this new numbering system . . . we would like to say how much we enjoy reading the many interesting and educational articles contained in your magazine."

K. OTTREY
Yarn Coordinator
Bruck Mills (Australia) Ltd.
Wangaratta, Vic., Australia

We continue to have many requests for this chart, which we first offered in S & R for July: **Ed Peterson,** James Lees & Sons Co., Dah-

lonega, Ga.; **Solomon Barkin,** dir. of res., Textile Workers Union of America, NYC; **W. Snaddon,** PA, The Hamilton (Ont.) Cotton Co. Ltd.; **J. W. Miles,** Clover (S.C) Spinning Mills Co.; **P. M. Feltham, Jr.,** Fabrica de Fiacao e Tecidos do Rio Vizela, Ltda., Negrelos, Portugal; **Thomas L. Norris,** New Bedford (Mass.) Rayon Co.; **A. Wolf Grunberg,** Industria Nacional de Tejidos "Sedalana," Bogota, Colombia; **R. I. Werner,** ch. des. engr., R. D. Werner Co. (Canada) Ltd., Oshawa, Ont.; and Societa Rhodiatoce SpA, Milan, Italy. We have a few copies left.

Beard of the Profit

There must be money in growing beards these days—everybody's doing it. Every time a town, a firm, or an individual celebrates its or his 100th, 50th, or 25th birthday, it seems necessary to forego shaving for a while. These gentlemen, who look like charter members of the Chester A. Arthur Republican Club, are actually employees of Rockford Textile Mills, Inc., McMinnville, Tenn.:

In McMinnville, they're better known as the "Rockford Rogues," and they're celebrating the McMinnville-Warren County Sesquicentennial Celebration.

► Rich's, Atlanta department store, recently advertised a pair of shoes as "screamingly subtle." Must be noisy—but in a quiet sort of way.

Commercial Developments

From time to time we have mentioned that J. B. Goldberg is always willing to supply further details on anything mentioned in his monthly column in TI, "Recent Technical and Commercial Developments." Just drop us a line, or write directly to Mr. Goldberg at 11 W. 42nd St., New York 36, N. Y. Those who inquired recently included **Arthur L. Smith,** tech. dir., Chatham Mfg. Co., Elkin, N. C.; **Norman Wolf,** National Hair

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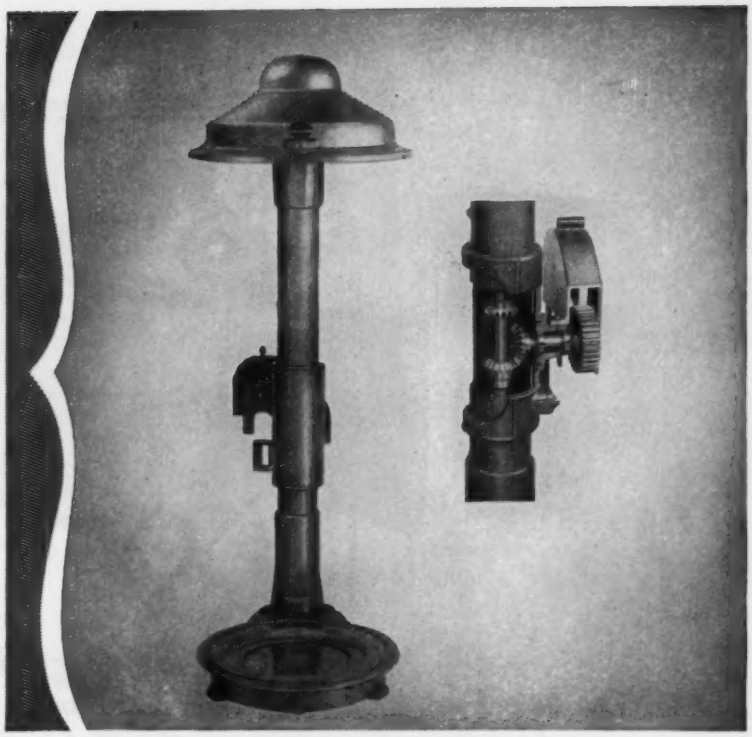


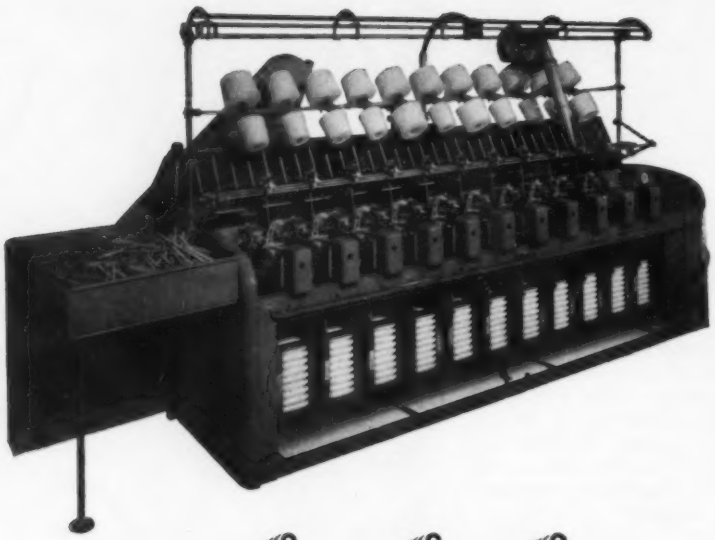
SOUTHERN STATES' NEW COILER LINE HAS ALL ENGINEERING AND DESIGN FEATURES WANTED BY MILL MEN

To provide mills with a premium-quality coiler, every engineering and design feature wanted by mill men has been included on the new Southern States Coilers.

A new center adapter (see cutaway view above) permits the stand, head, and base to swivel as a unit within the adapter collar. The coiler may thus be offset for can diameters up to 20 inches and still maintain a straight gear drive take-off for coilers of all makes.

Southern States Coilers are designed for direct attachment to any make of card, left or right hand. Installation is rapid and economical. Other outstanding features of the Southern States Coiler include: ball bearing throughout—head, shaft, cantable ... cut tooth gears throughout ... tubular steel stand ... precision-ground calender rolls ... self-aligning pillow blocks on upright and calender roll shafts ... fully adjustable can table ... quickly detached coil spring roll-loading device ... and many others fully described in our Technical Bulletin 205, available from your Southern States representative or by mail direct from us.

SOUTHERN STATES
EQUIPMENT CORP.
HAMPTON, GEORGIA



Schlafhorst

AUTOCOPSER

Established in all its versions in scores of American textile plants as the most flexible and most economical quilling operation . . .

SERVOLOOM AUTOCOPSER . . . to wind cotton and spun synthetics for the Draper Automatic Filling Magazine . . .

BOXING AUTOCOPSER . . . to wind worsteds, woolens, blends, cottons and spun synthetics . . .

CONTINOFIL AUTOCOPSER . . . to wind all spun and continuous filament yarns.

On exhibit at the . . .

SOUTHERN TEXTILE EXPOSITION

Textile Hall, Greenville, S.C., Oct. 3-7, 1960 . . . together with a new member of the Schlafhorst Family . . . the Schlafhorst **AUTOCONER** . . .

Both sold and serviced by The Terrell Machine Company, Charlotte, N.C.

THE TERRELL MACHINE COMPANY, CHARLOTTE, N.C.

TERRELL PRESENTS

Terrell presents the Schlafhorst **AUTOCONER** . . . for knitting . . .
dyeing . . .
warping . . .
quilling . . .
weaving . . .
the ultimate in high-speed, fully automatic, completely versatile cone — or cheese winding . . . The first public showing will be held at the . . .

SOUTHERN TEXTILE EXPOSITION
Textile Hall, Greenville, S.C., Oct. 3-7, 1960.

The Schlafhorst **AUTOCONER** will be in full operation . . .

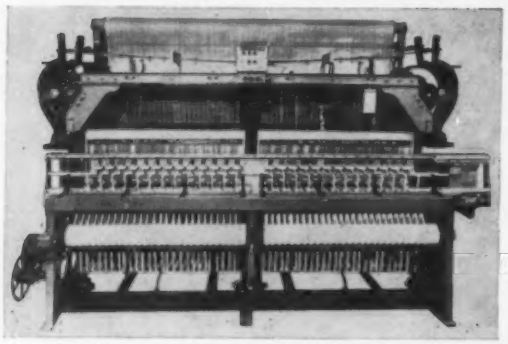
Also be sure and see the famous Schlafhorst **AUTOCOPSER** . . . both sold and serviced in the United States and Canada by the Terrell Machine Company, Charlotte, N.C.

THE TERRELL MACHINE COMPANY, CHARLOTTE, N.C.

See These FLETCHER 1960 MODELS In Production

Booth 807 Southern Textile Exposition

The New Fletcher MULTI-FAB High Speed Automatic Loom



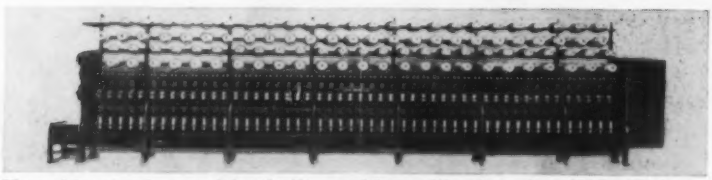
9 foot loom

built for maximum production of quality narrow fabrics

300 picks a minute For light and medium fabrics,

- **ribbons**
- **tapes**
- **elastic**
- **glass**

Fletcher MASTER DUPLEX DOUBLER-TWISTER



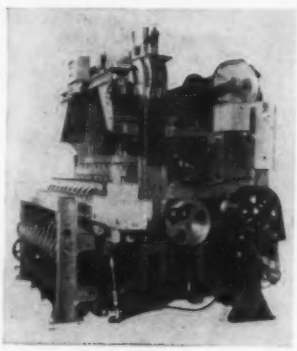
New, big sturdy precision-built machine with ring size 4¾"—5" has speeds up to 9,000 RPM. Twists up to 8 ends. New special feed roll attachments for making novelty yarns of glass, nylon and other synthetic and natural fibers.

Three type packages; conventional 2-headed, tapered top and tapered at both ends.

Provides the ultimate in flexibility on all yarns, synthetic or natural.
Gives you larger yarn packages for high-speed, tension-free delivery.

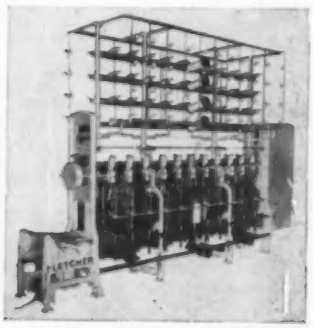
POWER-FAB High Speed Automatic Loom

5 foot loom • 54 inch traverse warp beams • Quills to 1¾" diameter heads • 250 picks per minute for type I to type IV government web, elastics, plastic webbing • 300 picks per minute for light fabrics, ribbons, tapes and glass.



See The NEW 5-Foot HIGH-SPEED ALL-PURPOSE ELASTIC WEB LOOM

Can be converted from elastic to non-elastic in a few hours. 250 picks per minute.



The BIG 5 POUND PACKAGE FLETCHER JUMBO DUPLEX DOUBLER TWISTER

5 pounds of Continuous Twisted and Doubled High Quality Woolen-Worsted, Textured, Synthetic and Cotton Yarns.

Bottle Bobbin, Straight or Taper packages. 22-spindle and 72-spindle 6" ring, 9-inch and 10-inch traverse.

FLETCHER INDUSTRIES

Hasbrook Ave. & Beecher St. Cheltenham, Pa.

FLETCHER INDUSTRIES, Turner Div. Statesville, N. C.

FLETCHER SOUTHERN SOUTHERN PINES, N. C.

SHORTS & REMNANTS

(from page 11)

Cloth Co., Wallingford, Pa.; **H. Carroll Brooke,** supt. dye. & fin., Masland Duraleather Co., Philadelphia, Pa.; **Robert T. Graham,** supvr., textile & prod. testing, Natl. Inst. of Drycleaning, Silver Spring, Md.; librarian, Bradford Cotton Mills, Ltd., Sydney, Australia; **Roy A. Playdon,** vice-pres. & asst. mgr., Aldon Spinning Mills Corp., Talcottville, Conn.; **Ben Heller,** pres., William Heller, Inc., NYC; **James D. Tierney,** head tech. info. sect., Celanese Fibers Co., Charlotte, N. C.; **Murray L. Rose,** Approved Flameproofing & Siliconizing Co., Miami, Fla.; and **C. B. Hood,** Lynrus Finishing, Inc., Poughkeepsie, N. Y.

Agilon for Spain

"We are subscribed for your fine TEXTILE INDUSTRIES publication since many years ago, being read a very interesting article titled 'How to Knit Agilon Sweaters,' in your copy of April 1960.

"We should be very obliged if you inform us about what is Agilon, if this mark is patented, as well as the address of the Incorporation which the patent is from, in order we shall be able to get in touch with that firm."

CONSEJERO DELEGADO
Comercial Quimica Masso SA
Barcelona, Spain

That's Deering Milliken Research Corp., P. O. Box 1927, Spartanburg, S. C.

It's Almost Here Again

This is busy executive **Alfred Moses,** president of Almar Mfg. Co., Inc. (they make vinyl-coated raincoats in a plant at Washington, Ga.), making out his Christmas list. At least that's what the caption says.

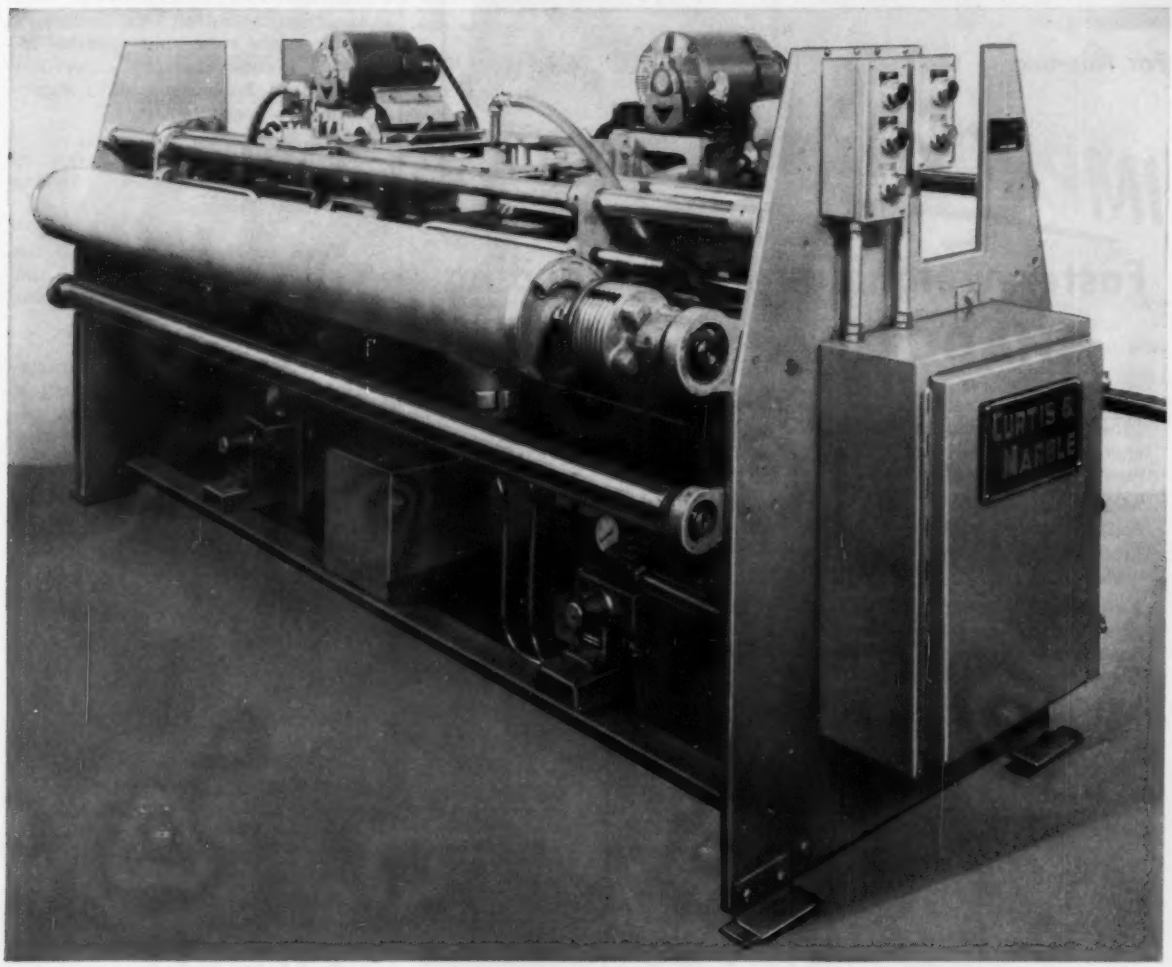
S & R prints this as a reminder—be like Al, get your Christmas list ready, too. It's only about two and a half months until it's time for Santa. And buy Christmas Seals.

THE NEW SL SELVAGE SHEAR

Here's the new high speed precision machine for shearing either one or both selvages of your fabrics. Mill tested, it handles all types of fabrics, as well as fabrics woven on the new Draper shuttleless loom.

Operation is by compressed air with a hydraulic cylinder. Cloth guiding is positively controlled at all times. Handles 14" to 120" width from light weight gauze to heavy denims, terry toweling and blankets from 60 to 110 YPM, depending on the type of fabric. A bulletin describing this SL Selvage Shear is yours for the asking.

SEE IT IN OPERATION IN BOOTH 235 AT THE GREENVILLE SHOW



CURTIS & MARBLE MACHINE CO.

72 CAMBRIDGE STREET • WORCESTER 3 • MASSACHUSETTS
SOUTHERN SALES & SERVICE • LAURENS ROAD • GREENVILLE, S. C.

HEADQUARTERS FOR FINE CLOTH FINISHING MACHINERY SINCE 1831

For Micronaire testing . . .

IMPROVED...

Faster-weighing, easier-reading SHADOGRAPH® Scales

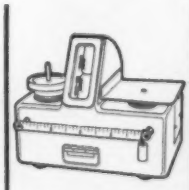
A new optical system, developed by The Exact Weight Scale Company, provides the Shadograph with greater-than-ever visible accuracy. Its shadow-edge indication is sharper, easier to read, and contributes to faster operation.

Model 4104-A, above, is specially designed for weighing samples in conjunction with the Sheffield Micronaire testing machine. Dial is graduated with 1 inch of indicator travel equal to 15 grains, over and under.

Extreme accuracy, plus greater speed and easy-to-read indication make Shadograph the choice of cotton shippers, brokers and mill operators both here and abroad. The Shadograph is another precision product of Exact Weight, leading manufacturer of job-engineered scales for more than 45 years.

Visit us at Booth 208 Greenville Textile Exposition

Model 4142 Shadograph for determining yarn count number. Direct-reading eliminates use of conversion tables.



Shadographs are available for color control, slashing, sliver test, denier test and check-weighing operations.

WRITE FOR BULLETIN 3328

Exact Weight SCALES

THE EXACT WEIGHT SCALE CO.
922 W. FIFTH AVE., COLUMBUS 8, OHIO
In Canada: 5 Six Points Road, Toronto 18, Ont.

Sales and Service Coast to Coast

Find us in your local 'Yellow Pages'

BETTER QUALITY CONTROL . . . BETTER COST CONTROL

PERSONAL NOTES

Kenneth Jenkins has assumed the new position of chief chemist at Hatch Mill Corp., Columbus, N. C. **Bobby Barnhill,** dyeing supervisor, has been named overseer of dyeing succeeding Mr. Jenkins. **J. B. Wall** has been promoted to machinery maintenance supervisor, **Charles M. Foster** to weaving shift supervisor, and **Virgil Smawley** to shift supervisor in preparation.

Milton K. Emerson, manager in charge of fabrics for Hellwig Dyeing Corp., has resigned.

Wynn B. Huskey has joined the staff of Corlin Processing Co., Inc. Mr. Huskey is in charge of dyeing yarn.

Reid Williams, formerly superintendent of the York, S. C., plant of Cannon Mills, has accepted the position of general superintendent of the Pacolet Mfg. Co., Inc., mill at Gainesville, Ga.

T. D. Lewis, Jr. has been named product manager of the Belfast Self-Ironing Fabrics division of Deering Milliken Research Corp.

James Pate Williams has been named superintendent of the Dixie Mill division of West Point Mfg. Co., succeeding the late Earl Bagley.

Rowland F. Kirks has been appointed general counsel of the textile industry trade association of the American Cotton Manufacturers Institute.

Brooks R. Prince has been elected secretary of Reeves Brothers, Inc.

Paul J. Angelo, Jr. has been named technical director of the research and development division of the Lowell Technological Institute Research Foundation. Mr. Angelo was formerly assistant superintendent of the Marland plant of J. P. Stevens & Co., Inc.

At the meeting of the Textile As-

Continued on page 22

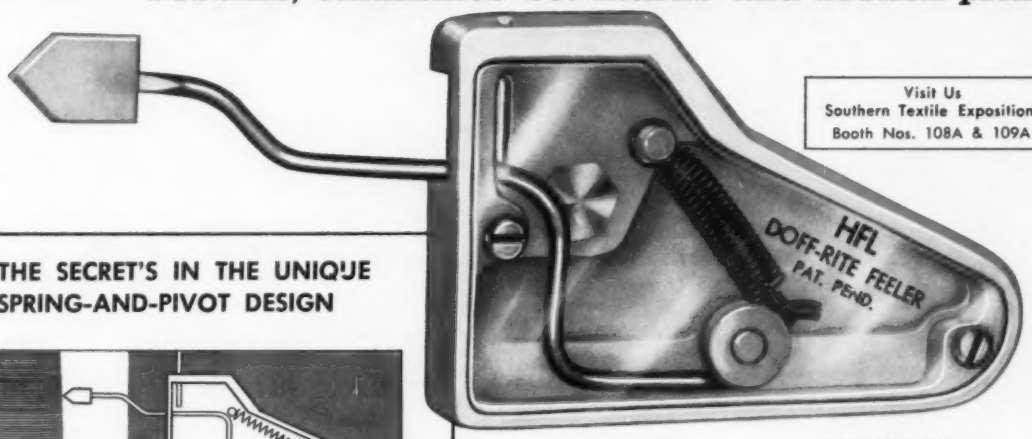
another **preferred** loom part

HFL ENGINEERED

DOFF-RITE* FEELER

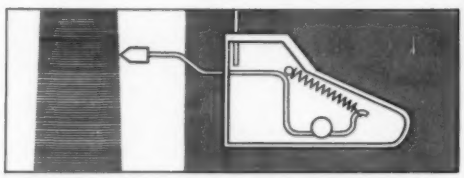
prevents premature doffs of full or partially full bobbins, eliminates set marks and broken picks

Visit Us
Southern Textile Exposition
Booth Nos. 108A & 109A

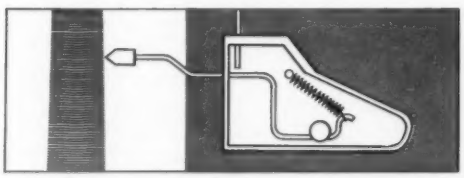


SHOWN ACTUAL SIZE

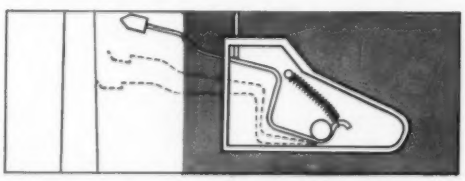
THE SECRET'S IN THE UNIQUE SPRING-AND-PIVOT DESIGN



1. **FULL BOBBIN** Doff-Rite Feeler Tip can not side-slip because "cushion" effect of filling prevents side-play. Only axial motion of Filling Feeler Tip is permitted. Efficient action of spring provides instant recoil.



2. **PARTIALLY FULL BOBBIN** Unique spring-and-pivot design increases resistance to side-slip when it is needed most — as Feeler Tip enters further into the bobbin to contact filling.



3. **EMPTY BOBBIN** The instant the Feeler Tip "feels" the smooth bobbin surface instead of the filling, it side-slips with a positive motion to actuate the Bobbin Transfer Mechanism.

* PATENT PENDING

Positive Action — Positive Savings

When a *full or partially full bobbin* is in the shuttle, Doff-Rite's spring-and-pivot design provides sturdy resistance to side-slip. Ultra-sensitive tip will not slip as long as it "feels" filling on the bobbin.

The instant the bobbin is *empty*, Doff-Rite's sensitive tip responds by side-slipping with a firm, positive motion that actuates the bobbin transfer mechanism.

Efficient spring action allows instant recoil, thus preventing feeler-tip marks, broken picks and filling run-out.

This is another example of how a preferred HFL loom part reduces downtime and helps weave better cloth.

Nylon and Steel Construction

All-nylon case eliminates friction wear, reducing downtime for repairs. Transparent removable cap gives full visibility of parts for assured settings. Replaceable nylon bushing at pivot point on which steel Feeler Tip Rod moves makes servicing simple and economical.

Interchangeable on Many Looms

HFL's Doff-Rite Feeler is designed for Draper Looms having BY-4846 Filling Feeler Guide and BY-4847 Filling Feeler Cap with Filling Feelers: BY-6769, 6782, 6799, 7242, 6818, 6946, 6949, 6950, 7241, 7243, BY-6714, 6618, 6977, 7361, 6144, 6804, 6527, 6403, 6150, 6150A.

Write for HFL Doff-Rite Feeler Data Sheets

HFL
IMPROVED LOOM PARTS

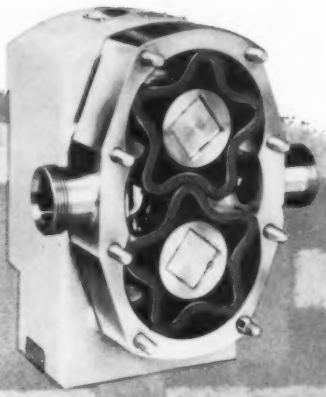
H. F. LIVERMORE CORPORATION

ESTABLISHED 1887

EXECUTIVE OFFICES & PLANT
BOSTON 34, MASS.

SOUTHERN DIVISION
GREENVILLE, S. C.

How many of these can cut costs in your mill?



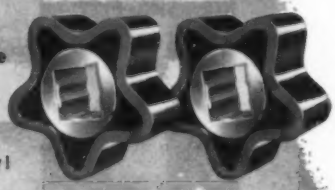
SHOWN AT BOOTH No. 127-127A
SOUTHERN TEXTILE EXPOSITION
GREENVILLE, S.C.

Stainless ROTARY SLASHER PUMPS

RESILIENT ROTORS absorb wear of abrasive sizing—

Compact design saves space—

Prices save you money!



Interaction of rotor lobes forms continuous, flexible seal between inlet and discharge, moves liquid without change in velocity. Metering of a constant volume of sizing is assured. All parts are replaceable in the field! Exclusive CP design of case and special seals prevent leakage. Available for specialized applications with vented cover—built-in by-pass or relief valve. These pumps are dimensionally replaceable for most pumps now used for sizing in textile mills. Complete stocks at branches listed below. Five sizes—up to 200 gal./min. at 200 P.S.I.

Stainless STARCH HOMOGENIZERS

Uniform homogenization at relatively low pressure and low power consumption!

One adjustment provides precise control of homogenization. Homogenizer valve is engineered to fit your particular requirements. All stainless steel exterior. Three and 5-cylinder models. Capacities 50 to 7,000 gph., depending upon model and starch characteristics.

Swept Surface STARCH COOKERS

No starch film build-up—continuous uniform cooking

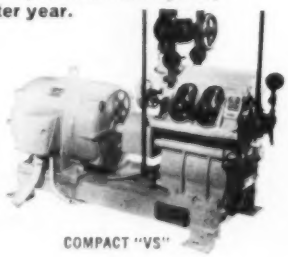
Displacer-mixer constantly sweeps starch away from exchanger wall, assuring rapid heat transfer. Cylinders are hard chrome plated nickel or stainless steel. Stainless steel exterior. One to four cylinders, in capacities engineered to your specific needs.

TYPE "K"

REFRIGERATION

Maximum refrigeration, in minimum space, at low cost—year after year.

Simplifies your installation and planning. A complete range of CP Model "K" multi-cylinder compressors, 2-stage factory-assembled compressor-booster systems and 2, 4 or 6 cylinder "VS" sectional compact compressors.



COMPACT "VS"

You are invited to write for **Bulletin A1-750.**

THE *Creamery Package* MFG. COMPANY
General and Export Offices: 3243 W. Washington Blvd., Chicago 7
ATLANTA 8, 471 GLEN IRIS DRIVE N.E. • CHARLOTTE 3, 215 FOSTER ST.

Southern Representative:
Wm. J. Moore
Poinsett Hotel Building
Greenville, S.C.

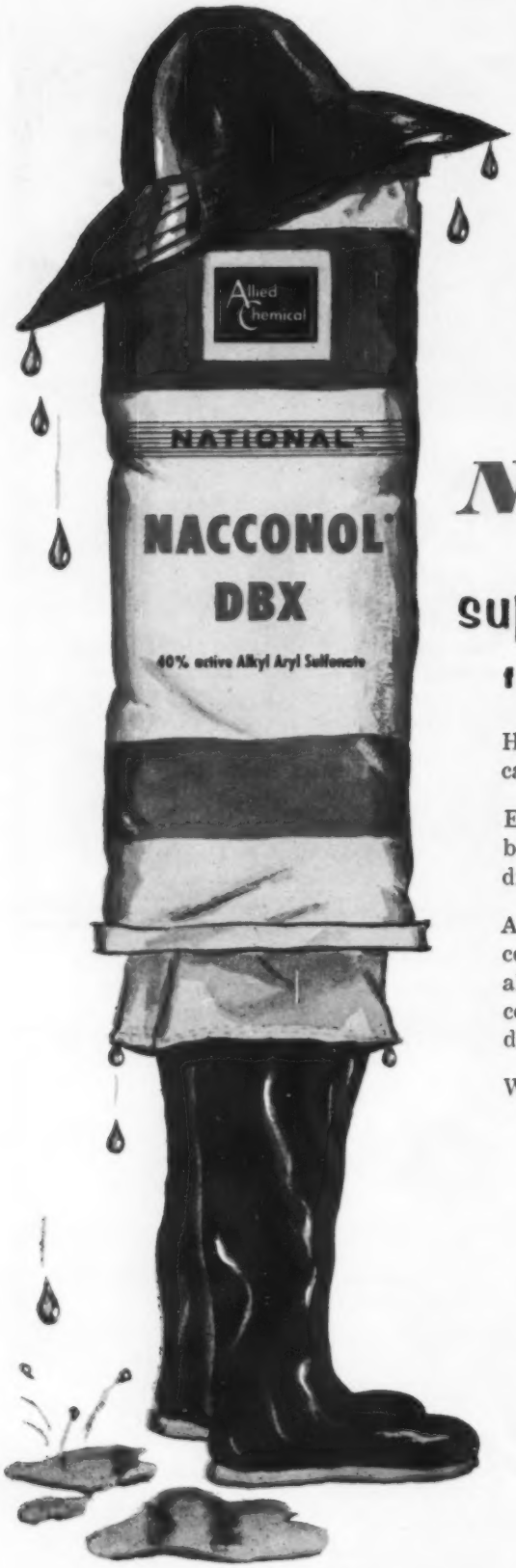
the FIBER PRODUCER'S dilemma
(audio) Fiber producers live in a world of . . .
FP
(audio) . . . pressure vessels
(audio) . . . piping
FP
(audio) . . . pumps
(audio) . . . and gloop
(audio) Their process is top secret
(audio) They need a working partner
(audio) . . . to design and build equipment
(audio) . . . to develop a pilot plant
(audio) And most important: Someone they can trust
(audio) America's leading fiber producers
LADY
TIGER
(audio) . . . have solved this dilemma
BUTTERWORTH
(audio) . . . at Butterworth
(audio) . . . world's largest independent manufacturer
(audio) . . . of synthetic fiber machinery
FP
B
(audio) . . . now, everybody is happy

BUTTERWORTH . . . machine builder extraordinary

H. W. BUTTERWORTH & SONS COMPANY
Division of Van Norman Industries, Inc.
BETHAYRES, PA. • SINCE 1820

VN

In the South: Industrial Heat Engineering Co., Greenville, S. C.
In the North: United States Supply Co., E. Providence, R. I.



Nacconol® DBX

40% active Alkyl Aryl Sulfonate

super dense beads stay dry

for better wet processing!

Here's a spray-dried surface-active agent that won't cake or lump up in storage.

Even under severely humid conditions, super dense beads of NACCONOL DBX flow freely from bag or drum. Dusting is essentially eliminated, too.

Another important fact, no matter which of the Nacconols you use, physical and chemical properties are always uniform, shipment after shipment and from coast to coast. You can count on the same wetting and detergent efficiency whenever and wherever you buy.

Write today for samples of NACCONOL DBX and these

OTHER TEXTILE NACCONOLS

NACCONOL SL Liquid
NACCONOL DB Dense Beads
NACCONOL NR Flakes

Allied Chemical

NATIONAL ANILINE DIVISION
40 Rector Street, New York 6, N. Y.

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1450 City Councillors St., Montreal 2 100 North Queen St., Toronto 18
Distributors throughout the world. For information:
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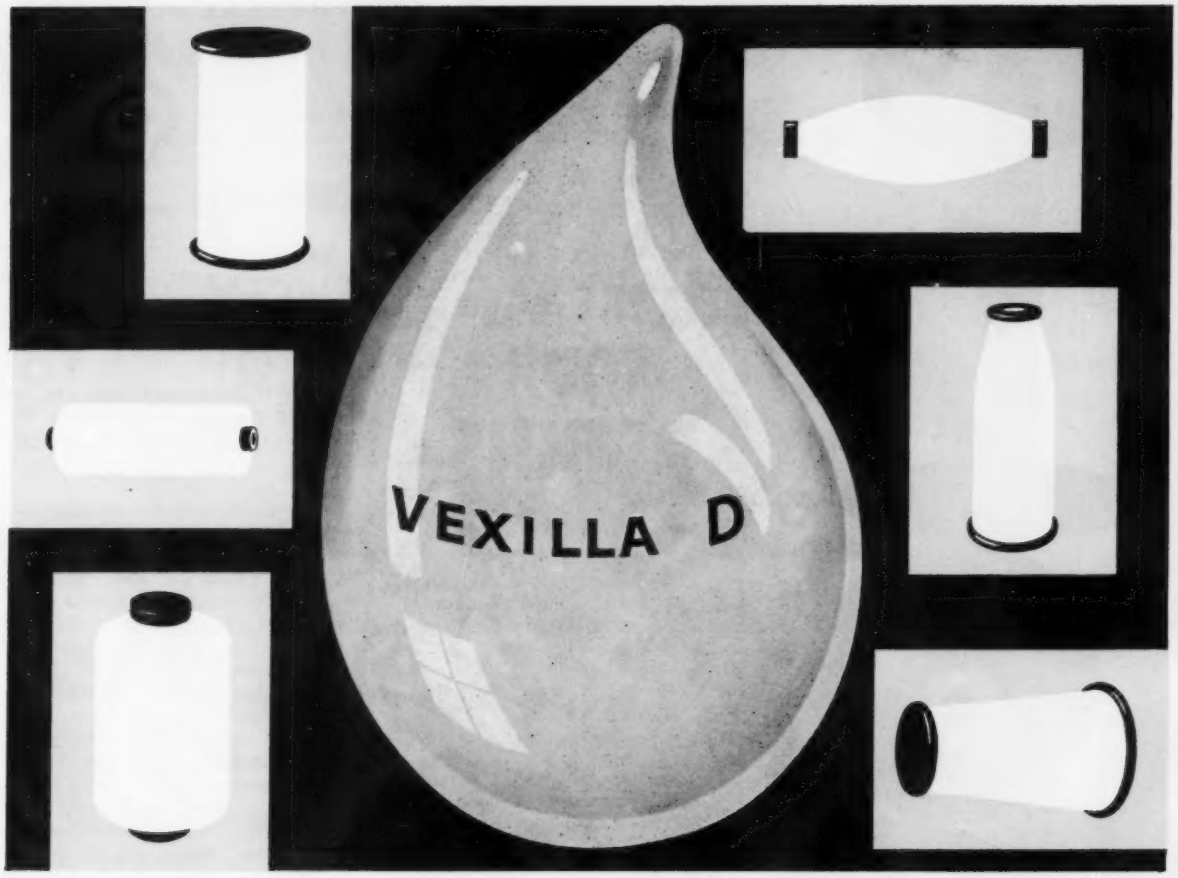


NEW *DISPERSANT* SPINDLE OILS

for COTTON—WOOL—SYNTHETICS

1. Increase Production. Shell Vexilla D Oils, because of their high film strength and lubricity, permit full-speed operation with heavy packages. They also insure complete lubrication protection to bearings, whether sleeve or anti-friction type.

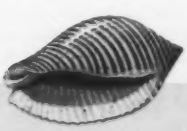
2. Improve Yarn Quality. Vexilla® D Oils will not thicken or gum up like ordinary oils. They constantly cushion spindles against vibration . . . eliminate hunting and logging . . . thereby reduce chafing and assure smoother, more uniformly twisted yarn.

3. Reduce Power Consumption. Vexilla D Oils lower frictional drag in both starting and running.

4. Reduce Spoilage. Vexilla D Oils will not atomize and fog-damage yarn on nearby spindles.

5. Increase Savings . . . especially when processing synthetic yarn. Since Vexilla D Oils have built-in emulsibility, any yarn stained during spinning and up-twisting can be salvaged.

Regardless of the spindles you use, you can expect improved performance with new Shell Vexilla D Oils. Ask the Shell Industrial Products Representative to assist you in selecting the proper grades for your plant. Or write for Technical Bulletin to Shell Oil Company, 50 West 50th Street, New York 20, New York. In Canada: Shell Oil Company of Canada, Limited, 505 University Avenue, Toronto 2, Ontario.



An interesting fact! Every Shell Branded Industrial Lubricant is named for a sea shell. Shown here is the Vexilla taeniata.

NEW

SHELL VEXILLA D OILS

. . . heavy-duty dispersant textile machine lubricants

SHELL

WHEN YOU
STEP-UP
IN SIZE
BE SURE
OF YOUR
BOBBINS

Next time buy Lestershire

When you move in to challenge the industry with bigger packages, higher speeds, longer runs . . . move in with bobbin quality that will back you up with the efficiency and economy you're aiming for.

Take this typical Lestershire large package "twister"; strong, high density, light-weight heads of Vulcanized Fibre reduce bobbin weight, lower the power factor, take the roughest plant use and abuse.

Or, check the precision finish of this 12" Hard Rock Maple Barrel. It's free of knots, is carefully machined to insure dynamic balance.

Plus, exclusive Lestershire anchor screw construction for the tightest head to barrel joint in the industry, brass bushings or aluminum steel center tubes for accurate spindle mounting. Lestershire's ambitious system of quality control check points, through every manufacturing step, insures quality consistency in every bobbin you buy.

Write for complete Lestershire Bobbin Catalog. Address Dept. W-10.

LESTERSHIRE SPOOL DIVISION

NATIONAL VULCANIZED FIBRE CO.

WILMINGTON 99, DEL. • *Plant:* 140 Baldwin St., Johnson City, N.Y. • *In the south:* Odell Mill Supply Co., Greensboro, N. C.; Greenville Textile Supply Co., Greenville, S. C.

PERSONAL NOTES

(from page 16)

sociates Club held in Wickford, R. I., recently, the following officers were elected: President—**Aaron Begum** of Crompton & Knowles Corp.; vice-president—**T. G. Orme,** of Baltic Mill; secretary and treasurer—**Fred A. Vogel** of H. F. Livermore Co.; asst. secretary and treasurer—**Kenneth R. Booth** of Union Wadding Co.; auditor—**William A. Savicki** of J. W. Wood Elastic Web Co.

Robert H. McDonald, assistant to the plant manager at Winnsboro (S. C.) Mills of U. S. Rubber Co., has retired.

Earl Rushon, vice-president of Indian Head Mills, Inc., has been appointed general manager of the Franklin Process Co. **Peter G. Scotese,** vice-president, has been named general manager of the finished goods division. **James M. Flack** and **Charles O. Wood,** vice-presidents and directors, and members of the company's management policy committee, have been named group vice-presidents of operations. Mr. Flack will head the group which includes Linen Thread Co., Franklin Process Co., and the grey and industrial fabrics division. Mr. Wood will head the group which includes finished goods division, Bernhard Ulmann Co., Hoosac Mills, and USF-Arnold Finishing Co.

Joseph P. Holt, president of Aberfoyle Mfg. Co., Philadelphia, Pa., has resigned. **Albert S. Wilson** has been elected president and a member of the board of directors.

George Friedlander, president of Duplan Corp., has retired. * * * **David Friedlander** has been named president of the Canadian subsidiaries, Duplan of Canada, Ltd., and Duplan Dyeing Co., Ltd.

Wilton West has been promoted to technical supervisor at the Ware Shoals division of Riegel Textile Corp. **Charles Washington** has been named to succeed Mr. West as night superintendent of dyeing and finishing. **Harold Munns** has been appointed shift supervisor in the vat dye department. **Ellison Smyth** has assumed duties as first shift supervisor in becks and jigg dyeing.

Carl H. Swan, Jr., president of Craftspun Yarns, Inc., Kings Mountain, N. C., has resigned. **Harold J.**

Continued on page 26

VINOL

polyvinyl alcohol

SOON ON THE WAY TO MILLS

Airco VINOL Polyvinyl Alcohol in grades designed for use as warp sizes, thermosetting resin modifiers, finishes, binders for nonwovens and ribbon.

Available soon, Airco VINOL—a group of polyvinyl alcohol resins tailored for specific uses—has unusual versatility . . . is moderately priced. In many textile applications, it warrants comparison with starch, casein, latex and other synthetic resins. Whether you are using polyvinyl alcohol or a competitive material, Airco VINOL offers you advantages in sizes, finishes, and binders.

VINOL polyvinyl alcohol resins provide a wide range of characteristics such as water solubility, water resistance; adhesion to porous or non-porous surfaces; toughness, flexibility. Other key properties are resistance to grease, solvents, rotting and tearing.

VINOL grades represent a range of properties, reflecting differences in degree of hydrolysis and polymerization. However, all dissolve easily in water and form colorless solutions; all have little tendency to dust. Airco's exclusive continuous manufacturing process turns out resins of consistently high quality, free from variations typical of batch processing.

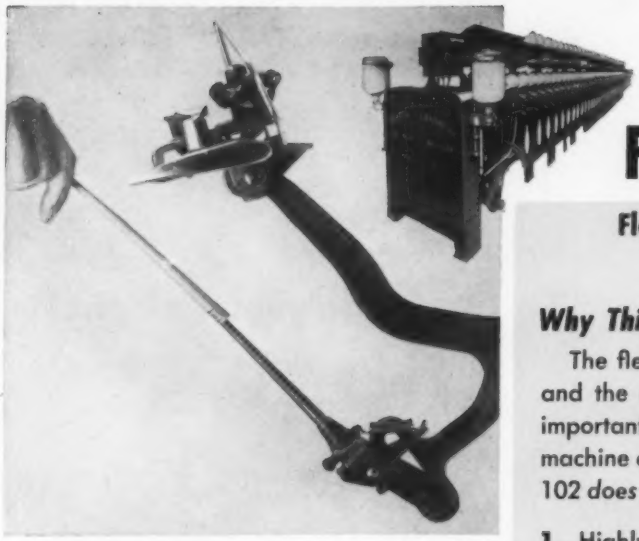
To receive the latest information about VINOL polyvinyl alcohol resins, let us put your name on our mailing list. We'll be glad to send you samples and technical bulletins as they become available.

AT THE FRONTIERS OF PROGRESS YOU'LL FIND . . .

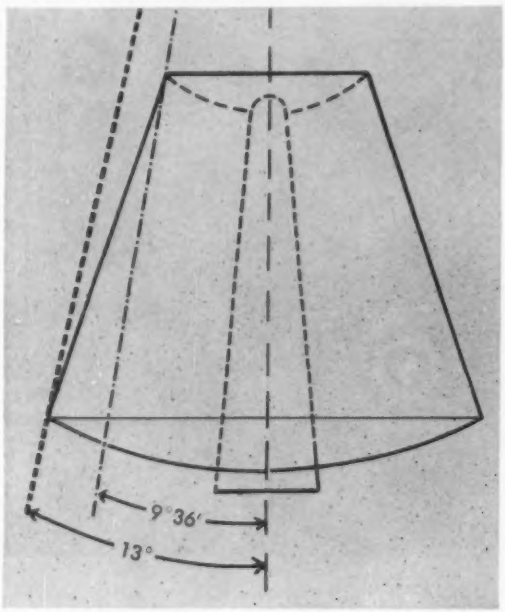
AIRCO®

AIR REDUCTION CHEMICAL COMPANY

A division of Air Reduction Company, Incorporated
150 East 42nd Street, New York 17, N. Y.
Represented Internationally by Airco Company International



TILTING BOBBIN PIN FOR SOFT TWIST COPS WHERE SINGLE BALLOON AND MINIMUM TENSION ARE REQUIRED



DRAWING OF 9°36' TAPER CONE

SLUB CATCHING AND WAXING ATTACHMENT

FOSTER MODEL 102

Flexibility — Economy — Quality Winding

Why This Machine Produces a Quality Package

The flexibility (adaptability to changing conditions) and the economy of the Foster Model 102 are very important, but they would be of far less value if the machine did not produce a quality package. The Model 102 *does* produce a quality package and here's why: —

1. Highly efficient slub catchers automatically inspect the yarn.
2. The 13° convex base cone promotes free delivery on the knitting machine — prevents underwinding and "nipitis".
3. Yarn conditioning and waxing attachments give proper softness and lubrication to yarn.
4. Ribbon breaker prevents ribbon wind.
5. Idler shell on winding drum prevents burning or chafing of yarn at nose of cone. Hairline fit prevents cutting.
6. Adjustable angle of wind assures properly formed packages which hold their shape in transit.
7. Even the softest twist yarns can be wound with minimum breakage, because they can be wound with no tension, if necessary.

Learn also about the flexibility and economy features of the Model 102. Write for Bulletin A-95-A.

FOSTER MACHINE COMPANY

A Yarn Winder for Every Purpose

Westfield, Massachusetts, U.S.A.

SOUTHERN OFFICE — Johnston Bldg., Charlotte, N. C. CANADIAN REPRESENTATIVE — Ross Whitehead & Co., Ltd., 2015 Mountain St., Montreal, Que. and 100 Dixie Plaza, Port Credit, Ontario - EUROPEAN REPRESENTATIVE — Muschamp Textile Machinery (Sales) Limited, Elder Works, Wellington Road, Ashton-under-Lyne, Lancashire, England.

A Member of American Textile Machinery Association

With the newly integrated textile application research group at our Princeton Research & Development Center . . . experienced chemists and engineers at district office, laboratory and plant locations . . . and traveling textile specialists ready to work with you in the mill . . . FMC is set to give you valuable help with a variety of processing and other textile mill problems.

Usually this technical service deals with ways to save time and money in the handling, storage and use of alkalis . . . or how to get better results in processes using products we supply to the textile industry. Frequently, however, by contributing a new perspective, we can be equally helpful in areas not directly related to our regular interests.

If we can assist you in any way, we'll be glad to do so without obligation. A call to our nearest district office is all that is required.

CAUSTIC SODA Liquid 73%, Liquid 50%, Regular and Low-Chloride Grades: Flake, Solid and Ground

CAUSTIC POTASH 45% and 50% Liquid: Flake

fmc
FOOD MACHINERY AND CHEMICAL CORPORATION ®

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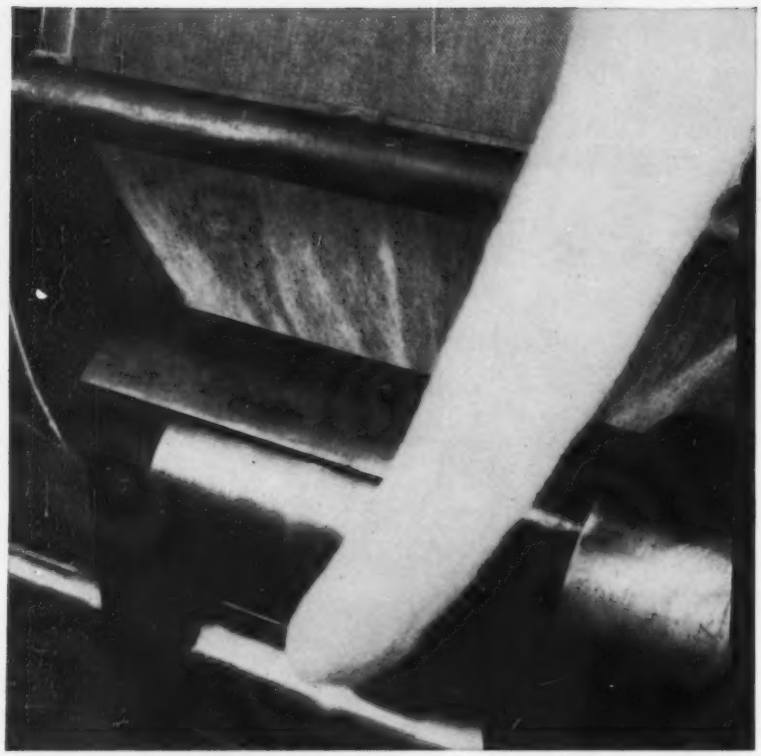

Booth METALLIC

Super Precision Metallic Wire

Years of investigation, research and mill study have resulted in the selection and development of Booth Metallic.

Booth studied all metallic wire available the world over, including types produced in Russia. In leading foreign mills with outstanding production records—Graf metallic wire was always the first choice.

Modifying this wire to the needs of American mills, Booth now offers a wire that is milled rather than punched, providing absolute uniformity of tooth shape and height with complete freedom from burrs. Even temper of Booth Metallic eliminates broken teeth and the super hard points prevent premature dulling. This superior wire costs no more than other makes.

A Booth representative can help you achieve the best in carding performance.

See us at the Greenville Textile Exposition, Greenville, S. C. Oct. 3-7, 1960, Booth #464

QUALITY CARD CLOTHING SINCE 1892

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PERSONAL NOTES

(from page 22)

Phillips, plant superintendent, and **Robert Lowe,** manager of the novelty division and accountant, will manage the firm.

John G. Gravlee, Jr., has been named executive in charge of Burlington Throwing Co. operations, succeeding **Joseph H. Hamilton** who resigned to purchase interest in a Georgia textile firm. * * * **James L. Enkridge, James D. Barbee,** and **John B. Russell** have been elected vice-presidents of Burlington Industries, Inc., and **Harry L. Dalton** has been named a director. * * * **William Oscar Cate** has retired as president of Burlington Cotton Co. Mr. Cate will continue with the firm in an advisory and consultant capacity, and will supervise the company's cotton purchases in the El Paso, Texas, area. **Willis A. Barber,** formerly vice-president, has been named president of the firm.

John Byrnes has been appointed general manager of the Philadelphia operation of Technical Textile Co. Mr. Byrnes succeeds **Morris I. Davidson,** who has resigned.

Paul Riva has been promoted to head finisher at La Francaise Dyeing & Finishing Co., succeeding Morris D'Argenio, who has resigned.

Peter Costerelli has been named to the newly created post of chief dyer at Richlea Dyeing & Finishing Co., Paterson, N. J.

Fritz Tscheulin has joined Pyramid Piece Dye Works as head dyer and **Walter Tomasulo** has been named head finisher.

Walter T. Ransburg has been elected president of the Jefferson Woolen Mills, Knoxville, Tenn. **B. H. Erskine** has been appointed secretary-treasurer.

Thomas Munn, formerly assistant overseer of dyeing at Excelsior Finishing Co., has accepted a like position at the Hillside plant of Callaway Mills Co., LaGrange, Ga.

Everett Shoemaker has been promoted to night overseer of weaving at the Liberty (S. C.) plant of Woodside Mills and **Alvin Hitt** has been advanced to general overseer of weaving. * * * **Ralph Cole** has been named overseer of carding at the Simpsonville plant and **Jimmy Bar-**

LET'S GET TOGETHER!

Southeastern Loom and Machine Works is in production position to accept additional orders on:

- Card Coiler • Card Drive
- Card Doffer Gear with Taper-lock Bushing
- 15" x 42" Coiler Changeover for Drawing Frame
- Spinning Frame Spindle Pulley Drives for replacing cylinders
- Teflon Coated Cast Aluminum Sliver Guide

LOOMS designed for light, medium or heavy fabrics

LOOM parts for all existing looms

- No. 11 Motor Drive
- Imperial Beam Stands
- Size Pumps, Centrifugal or Gear
- New Linkage—Type Parallel
- Southeastern Hydraulic Presses
- Southeastern One Piece Spreader and Middle Top Girt

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LOOM & MACHINE WORKS

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Supplies in Stock

- Even if you are satisfied with your present source, it's important to have a dependable second source, particularly for replacement parts.
- Southeastern parts are time-tested, use-tested, precision-engineered.
- Southeastern replacement parts are unparalleled . . . particularly outstanding are the Loom Parts, Card Drive, Card Coiler, #11 Motor Drive, Spreader and Spinning Frame Pulley Drive.
- Especially, Southeastern will make modifications on looms and loom parts to your specifications. In other words, Southeastern's service is completely individualized.

See Southeastern for individualized loom service—of course, your complete satisfaction is guaranteed.

static

ends with the Simco "Midget"

This electronic static eliminator is *unconditionally guaranteed* to end all static problems . . . safely, inexpensively . . . the most effective neutralizer available for use on cards, garnetts, warpers, slashers, finishing machines, and all other textile applications. The "*Midget*" assures static-free warps and slivers every time. Simco is America's largest manufacturer specializing in static neutralizers, anti-static cleaning devices and sprays, and meters for locating and measuring static.

Equip your machinery now.

the SIMCO company
920 Walnut Street, Lansdale, Pa.

PERSONAL NOTES

(from page 26)

ton has been promoted to assistant overseer of carding.

New chairmen recently elected to the hosiery advisory committees of the National Association of Hosiery Manufacturers are: children's and infants'—**O. K. Jones, Jr.,** president of Sweetwater Hosiery Mills; men's—**Robert D. Walker,** executive vice-president of Drexel Knitting Mills Co.; women's—**Alfred P. Slaner,** president of Kayser-Roth Hosiery Co., Inc.

R. Carter Henry, assistant general manager of the six plants in the cotton division's Greenville group of J. P. Stevens & Co., Inc., has resigned to enter private business. * * * **James Yuill,** president and director of Forstmann, Inc., has resigned.

Joseph G. Shedd, formerly vice-president and general manufacturing manager of Fulton Cotton Mills, has accepted the position of superintendent of the Alabama division of Dan River Mills, Inc. Mr. Shedd is headquartered in Montgomery, Ala.

Richard J. Caron, formerly manager of the Robesonia, Pa., plant of Caron Spinning Co., has been named vice-president in charge of sales for the Philadelphia area and New York state, with the exception of New York City. **John Herrmann,** formerly superintendent, has been named to succeed Mr. Caron at Robesonia, and **Abe Essig** has been named superintendent.

At Fulton Cotton Mills, Atlanta, Ga., Spinning Foreman **L. T. Sargent** has retired after 37 years of continuous service—32 of them as supervisor. Mr. Sargent, who recalls being paid as much as 60¢ for a 72-hour week as a doffer trainee, worked from doffer to oiler to section man to foreman. "Sixty cents was pretty good pay then for a 10-year-old boy," he reflected during an "exit" interview. * * * Down in the weave room, Foreman **Charles T. Bishop** recently received a certificate commemorating his fortieth year with Fulton and his thirty-second year as foreman.

Leon Lowenstein, Chairman of M. Lowenstein & Sons, Inc., is to receive the annual award of the Textile Section of the New York Board of Trade. The award, for outstanding service to the textile industry, probably will be presented on Nov. 10.

Joseph L. Barnett, of Perfection Spinning Co. and South Fork Mfg. Co., Belmont, N. C., recently was elected president of the Combed Yarn Spinners Association. Mr. Barnett moved up from the position of first vice-president.

OBITUARIES

E. G. Bagley, Sr., 52, manager of the Dixie Mill division of West Point Manufacturing Co., LaGrange, Ga.

Joseph A. Bradley, 56, former textile designer for Esmond Mills, Providence, R. I.

Edgar Dixon, 89, formerly president of the George Moore Wool Scouring Mills, Chelmsford, Mass.

Russell Fennell, superintendent of Hyde Park Mills, Covington, Tenn.

E. E. Hollenbach, 55, secretary of Penn Hosiery Mills, Inc., Reading, Pa.

Donald E. Marnon, 40, technical director of Otto B. May Co., Inc., Newark, N. J., and past chairman of the metropolitan section of the American Association of Textile Chemists and Colorists.

Richard H. Rabbitt, 56, executive vice-president of Jordan Mills, Inc., Columbus, Ga.

Robert Reiner, 80, founder and president of Robert Reiner, Inc., Weehawken, N. J.

Frank L. Robbins, 91, former president of the old Matoaca Cotton Mills, Chesterfield, Va.

George P. Stone, 91, retired supervisor of the Revolution plant of Cone Mills Corp., Greensboro, N. C.

F. M. Suchke, 65, general manager of Pioneer Heddle & Reed Mfg. Co., Atlanta, Ga.

Elmer S. Tilton, 90, retired head of G. H. Tilton & Son., Laconia, N. H.

Going to the Greenville Show?

Be sure to read the up-to-minute preview of the 21st Southern Textile Exposition which begins on page 119

. . . . .

Stop by Booth 408 *and visit with "Textile Industries" editors and business representatives*

Why Gates Lug Straps last longer... insure smoother operation

Super Tex-Hide Lug Straps

Users report up to five times longer service on their heaviest looms from Super Tex-Hide than from any other strap.

New Thin-Tex Lug Straps

When extreme flexibility and much lighter weight are needed, Thin-Tex Lug Straps give up to 25% longer life than ordinary straps... and smooth out loom operation.

Because of the great strength of Tex-Hide—a product of Gates *Specialized* Research—the block can be molded into the strap without the use of bolts or rivets. As a result, straps are streamlined and light in weight.

Yet, because of their superb resilience, they give longer service, and smoother operation, *than any other strap you have ever used.*

2 big advantages of Gates Tex-Hide Lug Straps

1 Tex-Hide Lug Straps combine great strength with unsurpassed resiliency. They soak up blows and shocks *without taking any permanent stretch.*

2 Further, the great resiliency insures long life for *all parts* of the picking motion, and gives extended periods of operation *without any strap adjustments.*

Gates Distributors are in the YELLOW PAGES

The Mark of Specialized Research

The Gates Rubber Company

Denver, Colorado

Gates Rubber of Canada Ltd., Brantford, Ontario

Gates®

TPA 9

Take-up Roll Coverings
Card Bands
Cone and Evener Belts
Spinning Frame Drives

Reversible Pickers

Tex-Hide Harness Straps

Tex-Hide and Vulco Loop Pickers

4-in-one Check Straps
Multi-Check Straps

Gates Textile Accessories

Application of 1-color lacquer ring inside 3°30' cone nose

Sonoco has the answer to yarn identification!

Sonoco was among the first, years ago, to recognize an urgent industry need for economical, sure-fire ways to identify packaged yarn. This led Sonoco to one of its most important developments—the *first* lacquer-tipped cone. Not only did this provide a quick means for identification, it also produced a smooth, hard nose for better yarn processing.

Today, Sonoco uses lacquers, coatings and dyes in a number of methods for marking cones, tubes, cores, spools and bobbins. For example, the 3°30' cone-tipping machine pictured above applies a 1-color lacquer ring on the *inside* of the cone nose. This economical method is popular for yarns which do not require a super-smooth cone nose to prevent snagging in take-off.

The unique methods for yarn identification are typical of the advancements made by a fully integrated company with 60 years' experience in creating and producing all types of paper textile carriers. *Only Sonoco,* in its field, provides the necessary knowledge, skill and capacities to meet the ever-changing techniques of the textile industry. *Let Sonoco experience help you!*

See Sonoco!
Southern Textile Exposition
Greenville, S. C.
October 3 - 7, 1960
Booth 244

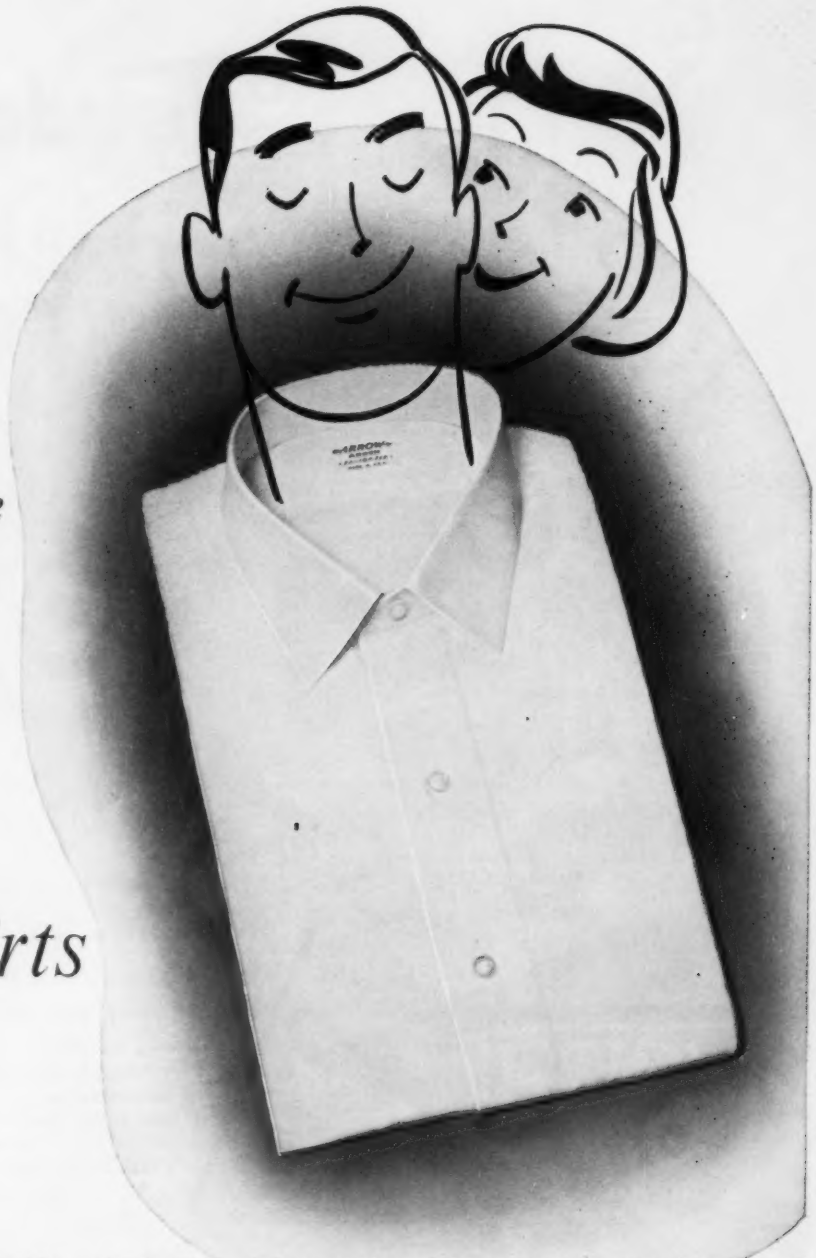
SONOCO
Products for Textiles

SONOCO PRODUCTS COMPANY, HARTSVILLE, SOUTH CAROLINA • Mystic, Conn. • Akron, Ind. • Lowell, Mass. • Holyoke, Mass. • Phillipsburg, N. J. • Longview, Texas • Philadelphia, Pa. • La Puente, Calif. • Fremont, Calif. • Atlanta, Ga. • Richmond, Va. • Brantford, Ontario • Granby, Quebec • Mexico City

1483

Solvay Activated Hydrogen Peroxide Bleaching Process gives

a whiter, brighter white to Arrow shirts



You always look your best in an Arrow shirt . . . there's good reason. Cluett, Peabody & Co., Inc., maker of Arrow shirts, puts full emphasis on highest quality production. And that's the major reason they have adopted the *Solvay Activated Hydrogen Peroxide Bleaching Process.* It produces better hand and superior whiteness without harm to the goods.

Like Cluett, Peabody & Co., Inc., you can use the Solvay Activated Hydrogen Peroxide Bleaching Process to obtain higher quality, whiter cottons at no increase in cost. Or, if you prefer, you can get whiteness equal to your present results with a marked decrease in chemical costs.

Although the Solvay Activated Hydrogen Peroxide Bleaching Process is a relatively new method developed by the Solvay Process Division for bleaching cotton, it is already in full-scale, commercial operation in a number of plants. It is available to you under royalty-free license.

Solvay technical service is available, without obligation, to help you evaluate this new process for your plant. Or, send for Solvay's free booklet which gives a complete description of the techniques and results you can expect.

Free technical bulletin—Fully describes details of the process . . . applications, advantages, cost analysis and comparative quality. It's free . . . no obligation . . . write Solvay today.

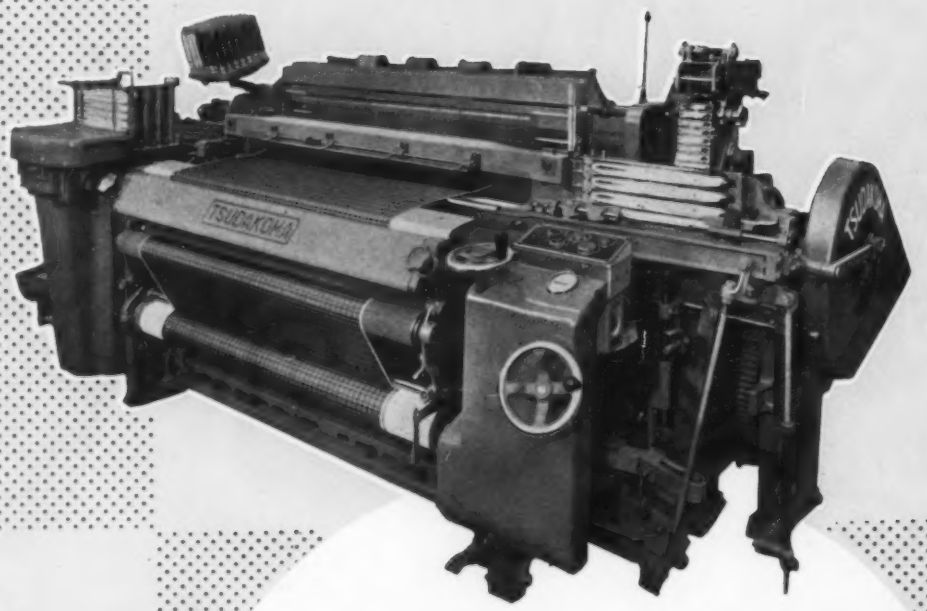
SOLVAY® CHEMICALS FOR TEXTILES

Caustic Soda • Chlorine • Hydrogen Peroxide • Sodium Nitrite
Mutual® Chromium Chemicals • Potassium Carbonate • Soda Ash

Allied Chemical

SOLVAY PROCESS DIVISION
61 Broadway, New York 6, N.Y.

Tsudakoma



ツダコマ

Automatic Loom and Ordinary Loom

Dobby

Preparatory Machine

Throwing Machine
High Speed Bobbin Winder
Doubling Machine
High Speed Bottle Winder
High Speed Warping Slasher
High Speed Sectional Warper
High Speed Magazine Creel

TSUDAKOMA INDUSTRIAL CO., LTD.

Head Office : Kanazawa, Japan
Branch Office : Tokyo • Osaka

What is the meaning of this new Fortrel?

POLYESTER

Because we believe that the American and world markets have far to go before they are as well-dressed and attractively-housed as new fibers and fabrics can make them . . . Because we believe that there is room—and *need*—for new fibers, Celanese now brings to market the new polyester, FORTREL.

WHY A POLYESTER? Continuing long range market analysis convinced us some time ago that the polyester group—strong, dimensionally stable, durable, tremendously resilient, almost perfect as a blending fiber—has the greatest utility and broadest application of any of the new man-mades.

WHY FORTREL? Polyester fiber, invented in England, was developed by Europe's largest chemical manufacturer, Imperial Chemical Industries. With their vast technical and engineering resources, they have built up a leading world position in polyester chemical and fiber production. So, when opportunity arose to form a joint Celanese-I.C.I. company to produce polyester in this country, we welcomed it. We felt that the combination of I.C.I. manufacturing and research skill and our knowledge of the American market could create important new values for the American textile industry.

HOW WILL CELANESE MERCHANDISE FORTREL? The key to Fortrel merchandising will be Quality Control, based chiefly on a licensing program at the converter level. Testing will be in terms of intended end uses. Identification will be energetically policed. (Details of this program are available upon request.) In addition, a massive advertising, promotion and publicity program has been designed to build a national brand name and consumer franchise.

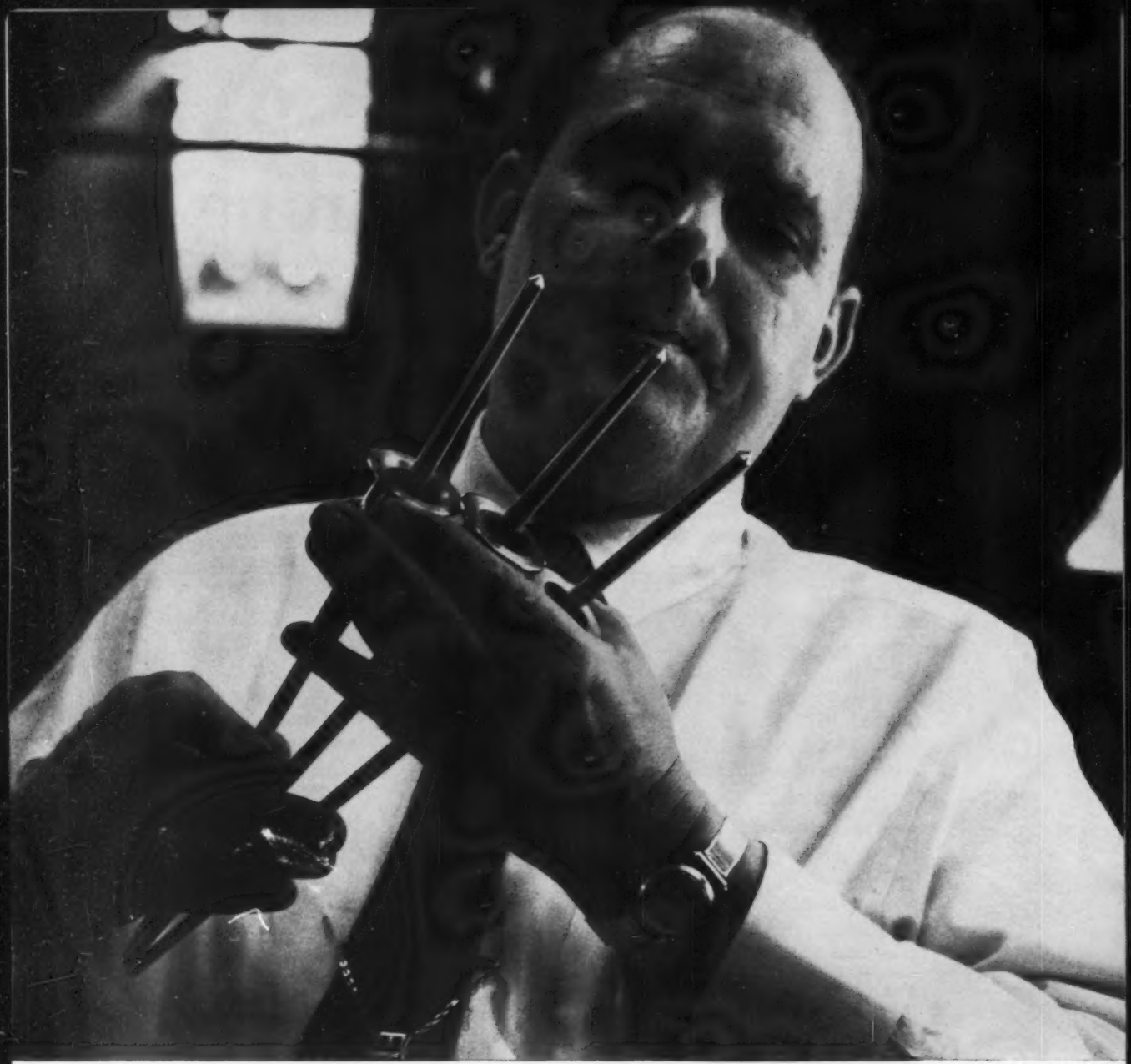
THE OPPORTUNITY. We are confident that the entrance of Celanese into the polyester field with new fabric developments, new marketing ideas, new promotional approaches, constitutes a rare opportunity for aggressive, imaginative merchants at all levels of the trade. For more detailed information, contact Celanese Fibers Company, 180 Madison Avenue, N. Y. 16, (a division of Celanese Corporation of America).

*Fortrel is a trademark of Fiber Industries, Inc.

Fortrel*

Celanese® NEW POLYESTER FIBER

the fiber that keeps its promise



Look alikes. Z. K. Kelly, Spinning Foreman, holds three clean spindles. Yet, only the left spindle is a new one. The center spindle is four years old, and the spindle on the right is five years old. Gulfspin keeps them looking new.

At Harriet & Henderson Cotton Mills, spindles clean after

GULF MAKES THINGS

For the past five years, Gulfspin lubricating oil has been used on all spindles in Harriet & Henderson's five cotton mills. "After spot-checking the spindles," says Mr. Z. K. Kelly, Spinning Foreman, Henderson Mill, Henderson, North Carolina, "we saw no reason to remove them. They were still clean after five years. So we decided to let them run and make periodic spot checks.

"We've seen what happens when spindles are lubricated poorly," says Mr. Kelly. "They turn black and corrode. And gum forms on them. This causes spindle drag, a lack of uniform twist-per-inch, and results in more ends down per thousand spindles. In short, it hurts product quality. But with Gulfspin on the job, we never worry about poor spindle lubrication."

Mr. W. W. Bishop also had a lubrication problem. As Weaving Foreman in the Henderson Mill, he supervises

Monthly oil check. This spindle lube cart is loaded with Gulfspin lubricating oil. Foreman T. D. Peck uses it to check oil level every month in plain bearing spindles and every year in ball bearing spindles.

Roving frames. Gulfcrown Grease is used to lubricate bobbin and spindle drive gears. This lithium base, general purpose lubricant has helped Harriet & Henderson Cotton Mills reduce drive shaft replacements.

Checking a loom. Dan C. Austin, Gulf Sales Engineer, left, and W. W. Bishop, Weaving Foreman, talk over the performance of Gulfcrown Grease E.P. It's used on main drive cam surfaces—and it stays.

Two old pros. J. D. Cooper, right, President and General Manager, Harriet & Henderson Cotton Mills, Inc., and Gen. J. W. Jenkins, Gulf Distributor. "J. D." knows that he can get any Gulf lubricant in 30 minutes from the General's bulk plant.

5 years of lubrication with Gulfspin® oil

RUN BETTER!

production on 448 looms. "I had trouble getting grease to stay on main drive cam surfaces. But, then I started to lubricate them twice weekly with Gulfcrown® Grease E.P. Now, there's always grease on the cam surfaces."

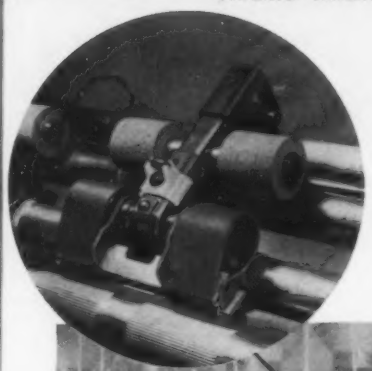
May we have the opportunity to demonstrate how Gulf lubricating oils and greases can provide better protection for your textile mill equipment? Just contact your nearest Gulf office.

GULF OIL CORPORATION
Department DM, Gulf Building
Houston 1, Texas

GULF

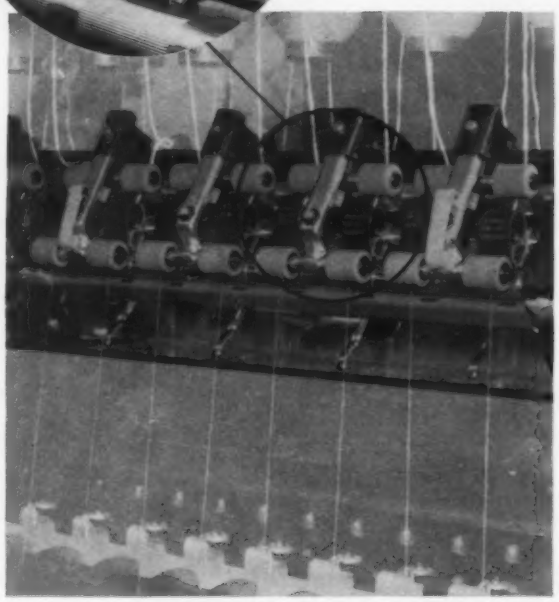
CleanGuide

PATENTS – PATENTS PENDING



SPINNING DRAFTING

Low Cost - Oil Free - Modern Unit for Maximum Drafting developed and proven on thousands of spindles over a period of several years.



Improves Yarn Quality through better apron control.

Operates Clean—Easy to install and remove.

Converts practically all types of Spinning to Double Apron Drafting.

Can be secured as complete Drafting on New Saco-Lowell Spinning with 60° Roll Stand, having friction or antifriction bearings.

No Cradle sides—allows air passage by Overhead Cleaners to move dry lint.

Supplied with Spring Weighting or for use with present dead weighting.

Request illustrated brochure. *See us at Booth 828.*

COTTON-McCAULEY & CO., INC.

PAWTUCKET - GREENVILLE - CHARLOTTE - ATLANTA

Manufactured by Machinecraft, Inc.

Available through Saco-Lowell Shops *and their Agents.*

MILL NOTES

Industrial Products of America has purchased **Fair Lawn (N. J.) Finishing Co.**

Forty cotton producers and ginners were guests of **The Russell Manufacturing Co.,** Alexander City, Ala., recently. A tour of the plant was part of an educational program being conducted on the cotton quality problem, and was designed to stress the role that quality cotton plays in a textile plant's operation.

A 30,000-sq-ft addition is being constructed at the **Thornton Knitting Co.,** Denton, N. C. Upon completion in November, the facility will be used for looping and boarding.

A 10,000-sq-ft addition is under construction at the **Gilbertville Woven Label Corp.,** Hardwick, Mass.

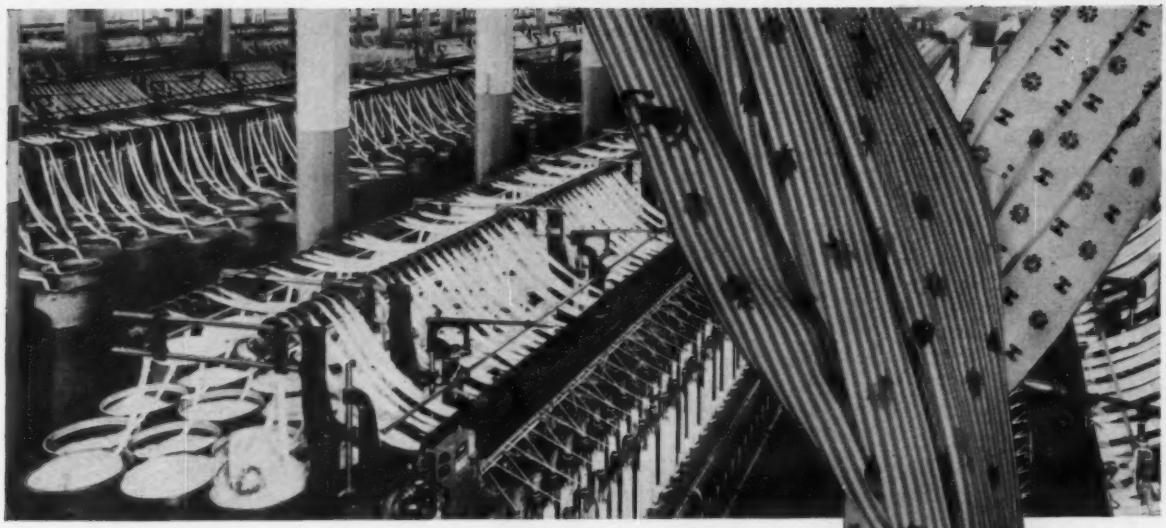
A new dyeing firm, **Pennsylvania Dyeing & Finishing Co., Inc.,** has begun operations in Easton, Pa. The company is processing fabric for women's wear, sportswear, shirtings, and the draperies trade, specializing in box work on both natural and man-made fiber fabrics. Sol Hak and William Duffy, sales executives with Forrest Piece Dye, are at the head of the firm.

The Red Bank Mill, Lexington, S. C., has been purchased by **Textile Processing Co.,** Augusta, Ga. Closed since 1957, the mill will manufacture corduroy.

Beavertown (Pa.) Weaving Mills, plans to expand its facilities to the tune of approximately $270,000. This increase will up employment by approximately 70 people, payroll by a quarter-million dollars annually.

The new plant of **Bergamo Fabrics, Inc.,** at 37-26 34th St., Long Island City, N. Y., doubles the firm's output of silk and/or cotton fabrics. Selling principally to upholsterers, interior decorators, and to the curtain and bedspread trades, the company required the expanded operations after

Continued on page 40



FROM CARDING TO FINISHED GOODS

You Can Count on STANDARD CHEMICALS

Quality right down the line—that's what you get with Standard Chemical's complete line of products for wet-processing. And no wonder! Standard chemicals are compounded from 100% pure components according to thoroughly tested formulas. Extensive research and more than 35 years of know-how assure their reliability.

And Standard's chemists help you stay ahead of the competition. All of these products reflect the latest developments in wet-processing natural and man-made fibers and fabrics... from carding straight through to finished goods. Check this line against your inventory:

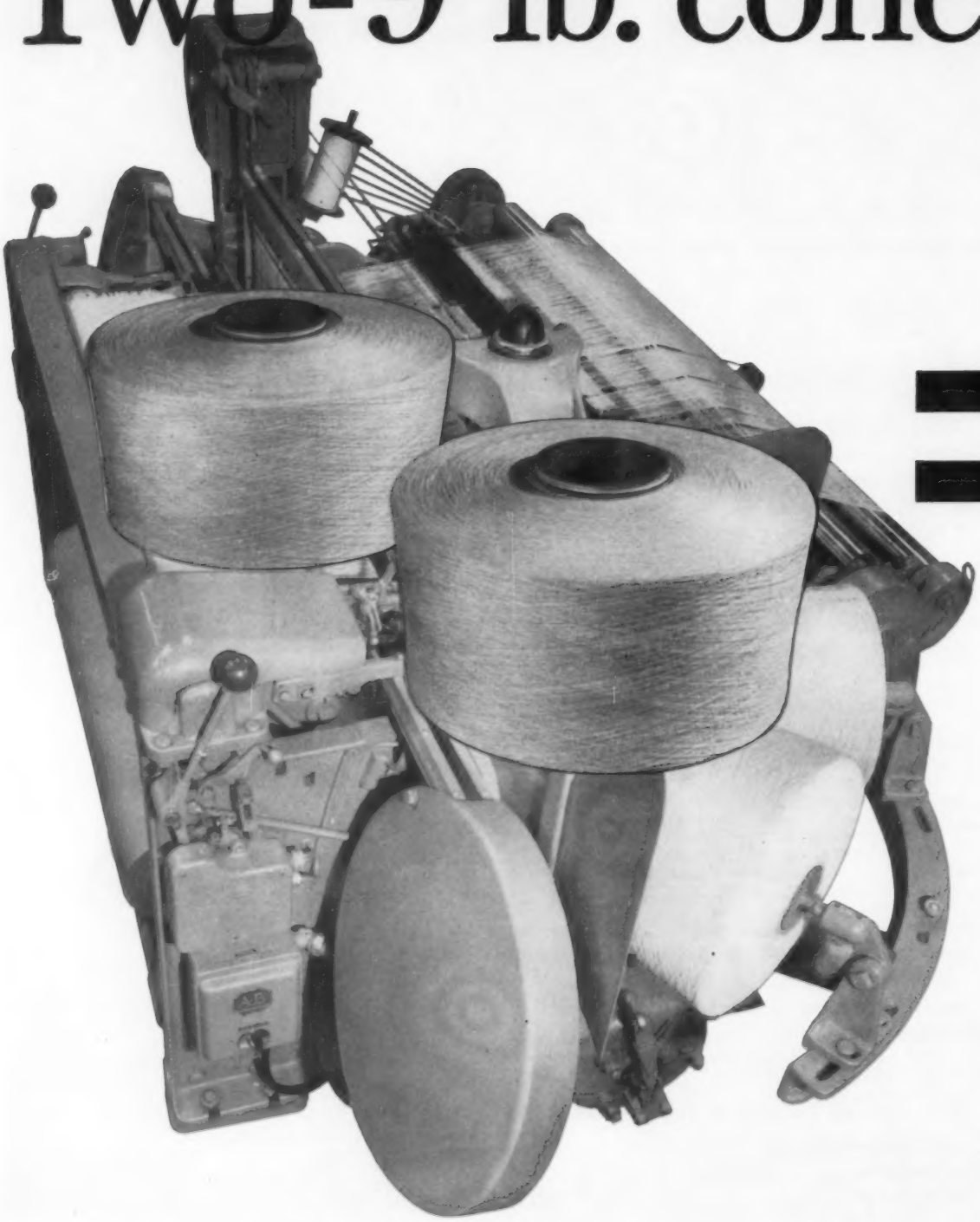
Standapol and Stantex products for carding
Stantex Penetrator 40 for desizing and sulphuric acid bathing
Turpenol XXC for boiling
Pyrotex detergent for cleaning
Mercetex 756 for mercerizing
Penetrator 111 and Sanforol 50D for dyebaths... vat, sulphur, direct
Retardine and Retardine D for dispersing, retarding and leveling light and dark shades on difficult fabrics
Pyrotex, Stantex NR-2 and Standapon for cleaning dyed goods
Standapol 16, Stanset 130 and Stanset D 40 for finishing
Sanforol 50 for Sanforizing

Enjoy the convenience, cost-saving and fast-service advantages possible when you get all of your chemicals from one source. Let Standard help you solve your wet-processing problems. Write today for full information about our line and free technical service.

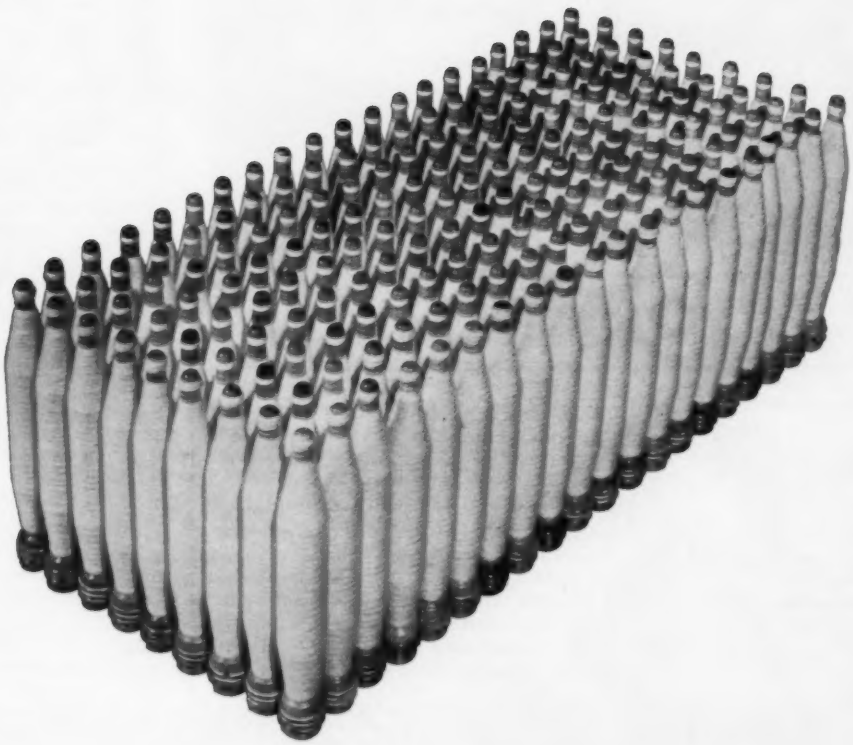
STANDARD CHEMICAL PRODUCTS INC.
HOBOKEN, N. J. • CHARLOTTE, N. C.

Specialists in textile oils, textile finishes, textile specialties for more than 35 years.

Two-9 lb. cones



180 bobbins*



The Draper Shuttleless Loom, with its *compact filling supply, drastically cuts costs of delivering filling yarn to the loom.*

Two filling packages, each nine pounds in weight, supply filling yarn equal to that supplied by *180 conventional loom bobbins**.

Less filling handling means; cleaner yarns, fewer cloth seconds, more continuous loom operation, and substantial reductions of weave room costs.

You are cordially invited to visit with us at our exhibit in Greenville, booth nos. 132-133-134.

**22's yarn / 1-7/16" diam (bobbin) / 8-3/4" length (bobbin)*

DRAPER CORPORATION

HOPEDALE, MASS. • ATLANTA, GA. • GREENSBORO, N.C. • SPARTANBURG, S.C.

TOLEDO SCALES that PRINT Complete Weight Records for You . . .

. . . *THE ANSWER* to prevent "guesswork" and errors in cost control!

Toledo Printweigh Scales are available in a wide range of models, including Portable, Floor, and Bench types as illustrated; also Built-in, Hopper, Overhead Track and Motor Truck types.

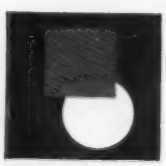
Human errors in reading, remembering and recording weights are eliminated with Toledo Printweigh "400" Scales. They're the surest way to satisfy your requirements for weight records that are complete and indisputable.

Weights are printed in full figures, even when unit weights are used. Choice of printing on 8½" x 11" forms, or on tickets; also on strips. Weight data may be transmitted electrically for recording on remote adding or other office machines. "Memory" feature available for printing weight data, even after load is removed.

Toledo Printweigh "400" Scales give new flexibility and efficiency in weighing . . . to cut costs, guard quality, prevent profit-stealing weighing errors. Ask your Toledo representative for the full story on Printweigh Scales, or WRITE TODAY FOR BULLETIN 2017. TOLEDO SCALE, Division of Toledo Scale Corporation, Toledo 12, Ohio
(Toledo Scale Co. of Canada, Ltd., Windsor, Ont.)

"MISFIT" SCALES MULTIPLY COSTS

Scales can become "misfits" as a result of changes in plant layout, materials handling, inventory controls, value or quantity of materials weighed. If this has happened in your plant, the results can be costly. For example: weighing errors, production bottlenecks, materials handling inefficiencies. Be sure your scales are adequate for the job. Ask your Toledo representative about a scale adequacy check in your plant, or send for the Toledo Weight Fact Kit.



SERVICE

TOLEDO® *Headquarters for Weighing Systems*

MILL NOTES

(from page 36)

only three years of operating in the United States.

In Easterly, Pa., **A. J. Brumbach, Inc.,** has ceased operations and plans to close its retail store as well. The company, a producer of woolen fabrics, began operations in 1830 and employed about 80 people at the time of its closing.

Burlington Industries, Inc., has announced the formation of **Burlington International A. G.,** Glaurus, Switzerland, to "study market and fabric conditions and undertake broad exploration of such operational opportunities as may evolve." Walter E. Greer, Jr., has been named president and will direct all international operations while remaining a senior vice-president and member of the Burlington executive committee.

Broadloom carpet production of **Duraloom Carpet Mills,** Lehighton, Pa., is being expanded through a program to cost some $80,000 and which will add about 10 people to the payroll.

Expansion work underway at the Millbury, Mass., plant of **The Felters Co.** will ultimately double its capacity for producing Allfab nonwoven fabrics. About $175,000 will be spent.

Fieldcrest Mills, Inc., has purchased all the equipment and machinery of Greenville (N. C.) Mills, Inc., a subsidiary of Artloom Industries, Inc. Renamed Karastan Spinning Division, the plant will supply carpet yarns to the parent company's rug operations. It is housed in a leased 100,000-sq-ft building and includes 14 sets of cards (woolen) and 2560 woolen spindles along with auxiliary equipment. Henry F. Morris (of Frank S. Nelson, Inc., Philadelphia) is joining Fieldcrest as general manager of the spinning plant; and Vernon E. Howell, Artloom's local manager, will continue as plant superintendent. A condition of the $80,000 sale is that Fieldcrest will supply yarns for Artloom's carpet operations, which are being streamlined to add greater flexibility and decrease over-all costs.

The new wing being built by **Jamestown (N. C.) Mills, Inc.,** to house new looms and auxiliary equipment will assist in more than doubling the company's output of

Which of these 3 products and services can you use from BECCO?

TECHNICAL BULLETINS

We got 'em—
You can have 'em!
They're FREE!

Years of experience in textile processing have produced a library of technical information which is available in individual bulletins, free on request. Use the coupon below to let us know which you'd like to receive.

No. 29 – Hydrogen Peroxide Dry-In Process for Bleaching Wool.

No. 35 – Modification of Wool with Peroxygen Compounds.

No. 43 – Treatment of Cellulose and Cellulose Derivatives with Peroxygen Compounds.

No. 52 – Bleaching with Some Peroxygen Chemicals.

No. 53 – Fluorescent Agents in Peroxide Bleaching of Knit Goods.

No. 60 – Successful Bleaching of Types 670 and 200 Nylon With Peracetic Acid.

No. 61 – Knit Goods Bleaching Range.

No. 71 – Continuous Bleaching of Cottons with Silicate-Free Peroxide Solutions.

No. 75 – Oxidation of Dyes On Cottons and Synthetics with Peroxygen Chemicals.

No. 88 – Progress in the Art of Bleaching.

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Gentlemen:
Please send me a copy of each of the following bulletins:

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Made for Nylon...

And Arnel, too, for that matter. As well as rayon-acetate, and other synthetics.

What's made for them? Becco's Peracetic Acid, of course. It's perfect for bleaching many synthetics, since you get good clear whites with practically no reversion during heat-setting operations. You'll find Becco Peracetic Acid minimizes reversion in storage, too.

We say "many" synthetics, because we can't list them all here. If you're having trouble bleaching any particular one, why not write us? We'll tell you what we've done to date, and what we might be able to work out for you.

If you're finishing nylon, start off by getting your free copy of Becco Bulletin No. 60 —"Successful Bleaching of Types 670 and 200 Nylon with Peracetic Acid."

Use the coupon below.

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Please send me a copy of your free Bulletin No. 60—"Successful Bleaching of Types 670 and 200 Nylon with Peracetic Acid."

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Problems in handling Hydrogen Peroxide

Becco's Four-Fold Engineering Service Program—offered free—includes:

1. Comprehensive survey of your facilities.
2. Specific proposal with recommendation of proved equipment and where it is obtainable.
3. Installation supervision by Becco.
4. Periodic inspection and permanent service.

Can you use this free Becco help, based on more years of experience with bulk handling of H_2O_2 than any other manufacturer? Use the coupon to let us know.

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Gentlemen:
Please tell me more about your Four-Fold Engineering Service.

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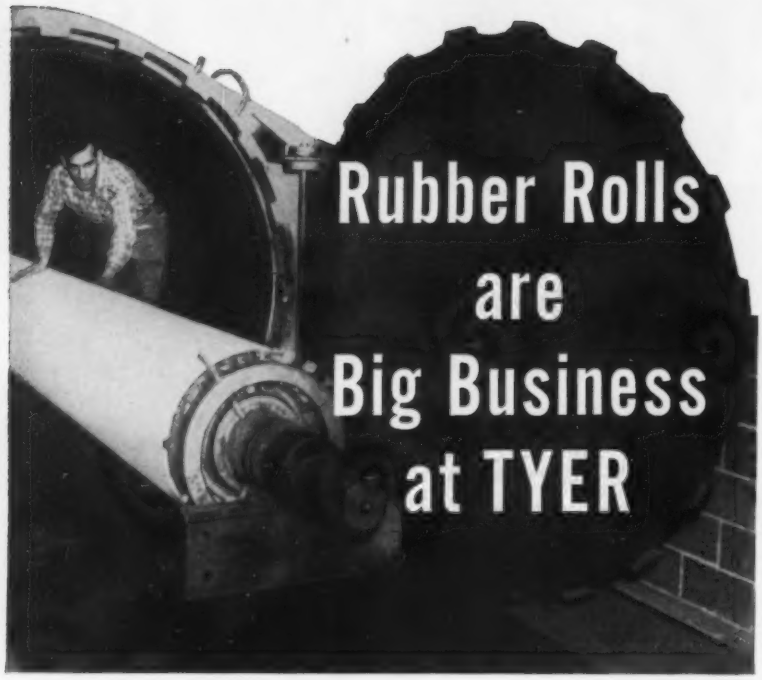


Tyer's expanded facilities for covering rubber rolls include the huge new vulcanizer shown above. 37 feet long, it has an inside diameter of 7 feet. Tyer grinders now accommodate rolls up to 60 inches in diameter and 366 inch face.

Tyer roll fabrication ranges in scope from tiny 1-ounce envelope rolls to giant suction press rolls used by paper mills. Hundreds of different compounds have been developed for our customers to take care of the functions to be performed by each individual roll.

In more than 30 years of roll manufacturing, Tyer has found the answer to many difficult rubber roll problems. Chances are, we can solve *your* problems, too. Write today for free brochure or a visit from a Tyer sales engineer.

TYER *Rubber Company*

ANDOVER, MASSACHUSETTS, U. S. A.

MILL NOTES

(from page 40)

filament nylon and Magiloft friezes. Additions include enlarged and modernized dyeing facilities, some new dye vats, a new power house, and a 250,000-gal water tank.

A new industry, **Tarboro (N. C.) Textiles, Inc.,** a subsidiary of Botany Mills, has begun operations. Knitted pile fabrics of various types are being manufactured.

The Paul Whitin Co., Inc., Gilbertville, Mass., has been purchased by **A. D. Windle Co., Inc.,** Millbury, Mass.

I. A. Wyner & Co., Inc., has been acquired by **Ames Textile Corp.** Organizational changes in both manufacturing and merchandising will be made.

Massachusetts Mohair Plush Co. has leased **Esther Yarn Mills Co.** property at Boiling Springs, N. C.

A dyeing and finishing plant is being constructed near Morganton, N. C. The firm will be known as **Morganton Finishing Corp.**

At Clover, S. C., **American Thread Co.** has received a Safety Achievement Certificate from the S. C. Dept. of Labor for reducing its 1950 lost-time accident experience 49% over the 1958 figure. Hampshire preparation has finished 1,508,392 man-hours (more than seven years) without a lost-time accident; Hawthorn preparation has finished 724,466 (about five years); and Hawthorn spinning, 1,171,426 (nine and one-half years).

The new rug plant of **Kingston Mills,** White, Ga., is three times the size of the original plant at Cartersville, Ga. In its 150,000 sq ft are housed spinning and tufting departments, offices, and show rooms.

Line-Made Hosiery Mills, Inc., at Hickory, N. C., is adding 2500 sq ft of space to relieve plant congestion. The firm produces men's and boys' stockings, employs about 160 people.

A new fabric-dyeing firm, **Penn Dye and Finishing Co., Inc.,** Pine Grove, Pa., is to cost $102,000, have an annual payroll of $200,000, and employ about 80 people.

Reeves Bros., Inc., is to gradually

Continued on page 46

The P&F Technical Service Representative can help!

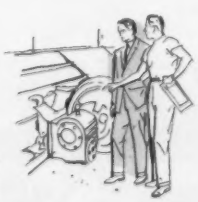
So many things can happen to interfere with smooth weaving operations! A machine can go out of adjustment, stuck ends can break the yarn, uneven tensile strength can cause warp stops, hard size problems can plague you. And while the results of the trouble may be obvious, the cause and cure are sometimes harder to discover.

That's where Penick & Ford comes in! We maintain one of the largest staffs of trained textile experts in the business. If you have used our Crown Thin Boiling Starch, Douglas Starch or Dextrine, Clearsol or Penford Gun, you know that P & F means quality. It also stands for service.

The Technical Service Representative who responds to your call is a skilled sleuth when it comes to detecting textile troubles. After studying operations in hundreds of mills around the country, he knows the trouble spots and shortcuts, and he has more answers than you can shake a spindle at. In his kit are all the tools needed for scientific detection — thermometer, viscosimeter, pyrometer, refractometer, etc. And he is well armed with 500 Penick & Ford starches and derivatives.

Even if you have no specific problem, our technician may be able to make a cost-saving or quality-improving suggestion to advance your weaving efficiency. So why not take advantage of his experience? A letter or telephone call to our Atlanta Office will bring him promptly. The address is 1531 Marietta Blvd., Atlanta, Ga. Tel.: SYcamore 4-9521.

The P&F Technical Service Representative tests yarns and textiles for abrasion resistance, etc...



Checks out your warp sizing, finishing and glazing solutions in actual production conditions...

Studies machines and methods... brings his wide experience to bear on your whole weaving operation.

Penick & Ford

PENICK & FORD, LTD.

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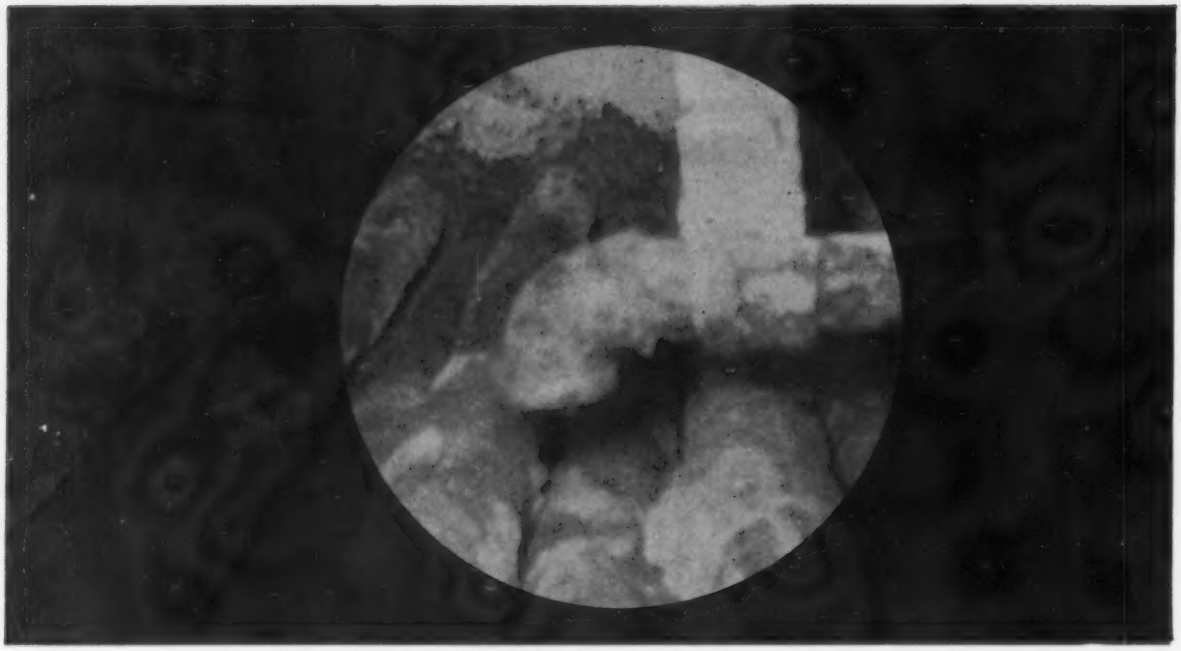
Visit us at Booth No. 427-428 at the Southern Textile Exposition.

BRAXON

stops scale and corrosion



Braxon conditions water, protects boilers

BRAXON is a specially formulated feedwater treatment that conditions water to remove and prevent scale formation and corrosion in boilers. BRAXON bases its effectiveness on phosphate and carbonate control . . . maintaining the proper alkalinity and softness in the boiler water. Special BRAXON formulas inhibit the tendency of some feedwaters to produce foaming and carryover. No single formula can be applied successfully to all the various types of boiler feedwater, so BRAXON formulas are prepared specifically for use in *your* plant after a careful analysis and study of raw water used. Your BRAXON formula will keep your boiler operating at top efficiency, eliminating shut-downs and repairs caused by corrosion and scale. . . BRAXON can save your company money.

Write today and request that an Anderson service engineer make an analysis and recommendations for your plant's water treatment. There's no cost for this service.

SPECIALISTS IN MAKING WATER BEHAVE

Anderson Chemical Company, INC.

Macon, Ga., Box 1424 • Phone Sherwood 5-0466

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Picker Overhauling Is Simple When You Depend On . . .

Aldrich Repair Service

We furnish skilled men for reworking pickers, and can deliver to these men any needed parts within 24 hours in most southern states, and within 48 hours to almost any cotton mill in the United States. This makes thorough overhauling a simple matter. Anything needed for a good job can be had at once, while the machine is down for repairs.

If you do your own overhauling, this speedy delivery service is just as valuable. You don't have to wait for repair parts — they are there when you want them.

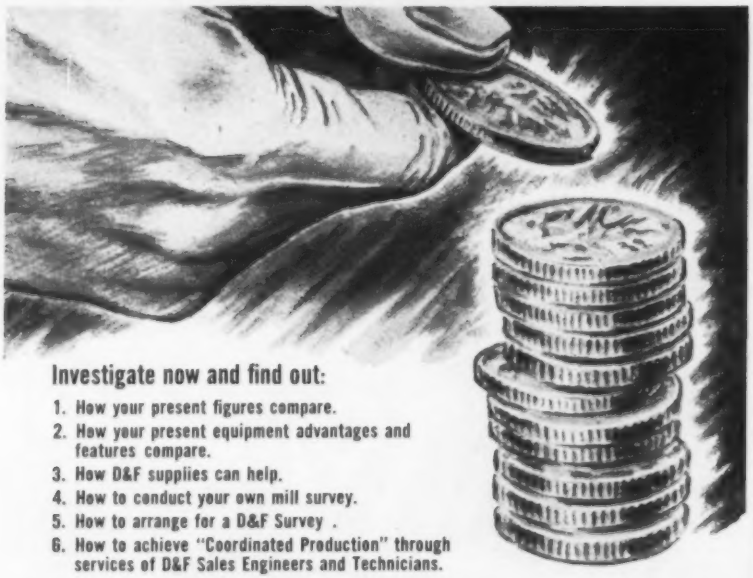
We manufacture and install complete blending, opening, and picking systems for cotton and synthetics, and cleaning systems for cotton.

Aldrich Machine Works

Greenwood, South Carolina

QUESTION...

How do you stack up... in yarn production and quality?



Investigate now and find out:

1. How your present figures compare.
2. How your present equipment advantages and features compare.
3. How D&F supplies can help.
4. How to conduct your own mill survey.
5. How to arrange for a D&F Survey .
6. How to achieve "Coordinated Production" through services of D&F Sales Engineers and Technicians.

ANSWER...

Work hand-in-hand With "Coordinated Production" in the woolen system.

DAVIS & FURBER

MACHINE COMPANY

TEXTILE MACHINERY DESIGNERS AND MANUFACTURERS

North Andover, Mass.
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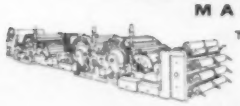

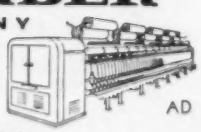

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Member — American Textile Machinery Association

CARDS • SPINNING FRAMES • PREPARATORY MACHINERY • WARP DRESSING MACHINERY • FINISHING MACHINERY
MACHINERY MODERNIZATION • ACCESSORIES, SUPPLIES CARD & NAPPER CLOTHING GARNET WIRE, TAPES & APRONS
SPARE PARTS • TECHNICAL SERVICE & CONSULTATION

MILL NOTES

(from page 42)

assume the entire manufacture and marketing of Curon foam now controlled by Curtis-Wright Corp. Reeves will eventually acquire machinery, inventory, sales contracts, and other assets. The foam is used for cushioning beddings, upholstery, carpets, and for bonding to apparel, etc.

At Cheraw, S. C., **J. P. Stevens & Co., Inc.,** has completed a 250,000-sq-ft plant for finishing the synthetics fabrics from its Victor and Greer, S. C., plants. It will be largely equipped and staffed with machinery and personnel moved from another location. Clyde T. Moore will move from Delta, No. 3 to serve as manager.

Schwarzenbach Huber Co., New York City, plans a $150,000 expansion of its silk and synthetics facilities. Employment will be upped about 40 persons.

The **Schlegel Mfg. Co.** of Rochester, N. Y., is opening a new narrow-fabrics weaving plant in Chester, S. C., this month. The product: webbing for lawn furniture and similar products. Frank R. Rochow will be the plant manager and Charles L. Jordan will be administrative assistant.

United Merchants and Manufacturers, Inc., is erecting a 2500-sq-ft, one-story office at Pettigru St. and Broadus Ave., Greenville, S. C., for the fabric production division.

Vanity Fair Mills, Inc., is to build a 30,000-sq-ft plant at Butler, Ala., to employ some 300 people (eventually 500). To be known as Choctaw Mills, it will be Vanity Fair's fifth subsidiary plant in that state.

West Point (Ga.) Mfg. Co. has awarded a contract for the erection of a 125' x 640' cotton warehouse to contain 8 10,000-sq-ft fireproof storage compartments. An adjacent building to house the cotton offices is to hold the production-planning functions now being carried out in New York. About 25 local jobs will be created by the move.

The $450,000 expansion program at **Mackintosh Spinning Mills,** Clover, S. C., will be completed by the end of this month. Two thousand spindles and 7,000 sq ft of floor space have been added to the plant, which is now equipped with 6500 spindles.

"Más Grande"

"Ausgezeichnet"

However They Said It... Exhibition Visitors Rated These New HUNTER Developments

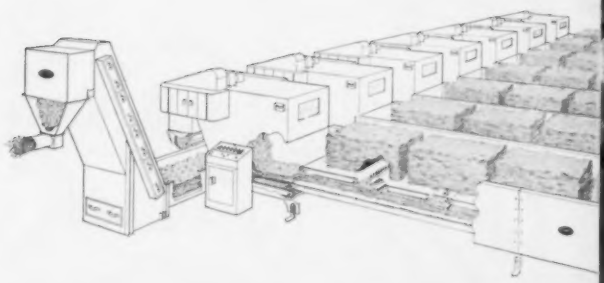
"Magnifique"

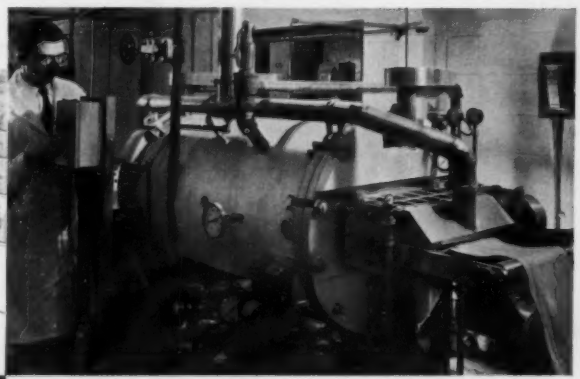
"Bravissimo"

This is the equipment being discussed today . . . in a dozen different languages . . . by visitors to the American Textile Machinery Association-Exhibition International. These new developments, unveiled in Atlantic City, brought the crowds to Hunter, leader for over a century in research . . . engineering . . . and development of machinery for the textile industry *exclusively*.

"TOPS"

They spell *progress* in textiles . . . and offer new opportunities to improve product quality, lower production costs, increase profits. That's why these new machines already figure importantly in the future plans of textile men throughout the world. Be sure to see us in the Fall at the Southern Textile Exposition in Greenville.





For Cotton Blending

NEW! HUNTER MULTI-TUFT BALE BLENDER fully automates the opening room. It pre-opens and evenly mixes all bales in a grade, to improve uniformity, prevent short-term variation, save the cost of inefficient opening room labor. Reduces ends down in spinning, improves yarn quality, introduces complete blend control.

For Wet Processing

NEW! HUNTER PRESSURE-LOK permits high-temperature processing of continuous cloth webs. A major breakthrough in this field, it assures continuous processing pressures of 50 pounds. The **PRESSURE-LOK** introduces an unlimited potential in desizing, bleaching and dyeing of natural and synthetic fabrics.

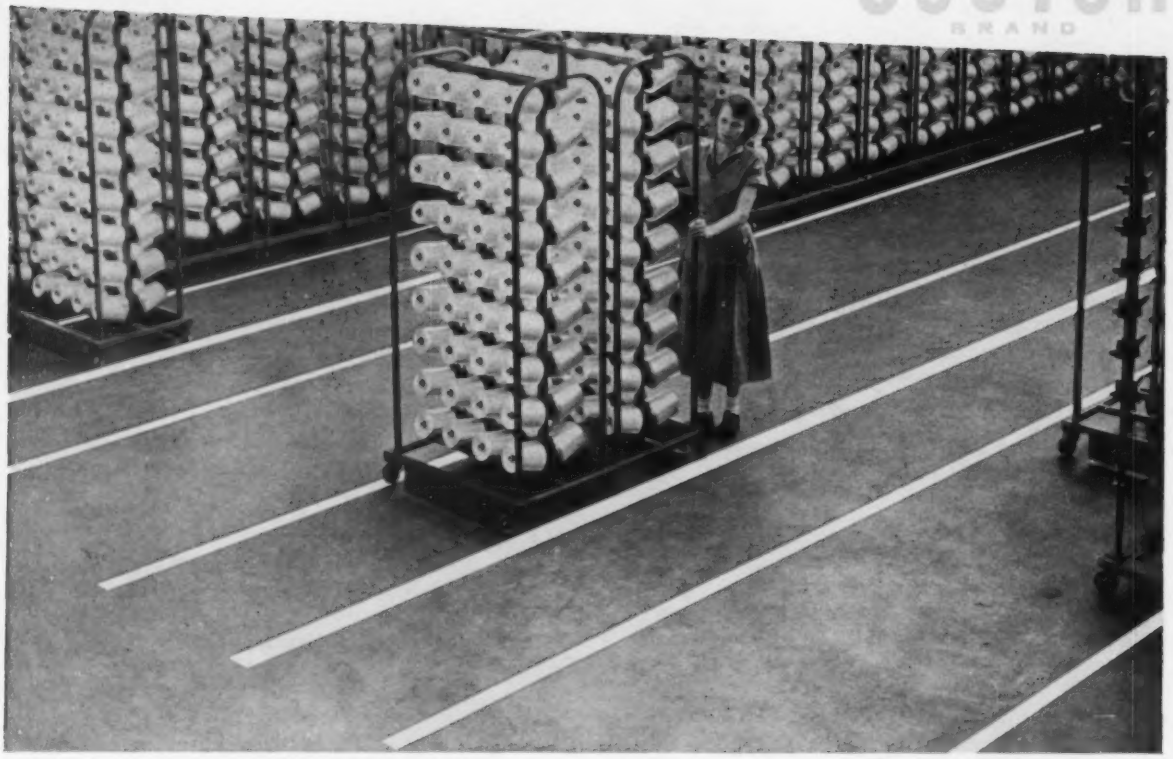
For Non-Wovens

NEW! HUNTER WEBFORMER for improved random webs. Simplified design reduces maintenance, eliminates close-tolerance adjustments. Exclusive features speed production, prevent web damage. **THE HUNTER FIBER/LOCKER** is scientifically-engineered for high-speed, vibration-free needle felting of natural and synthetic fibers in a selection of widths and needle board patterns.

JAMES HUNTER

JAMES HUNTER MACHINE COMPANY • NORTH ADAMS, MASSACHUSETTS

***Subsidiaries:** James Hunter, Incorporated, Mauldin, S. C. • Hunter Controls, Mauldin, S. C. • Hunter Fiber Machine Company, Los Angeles, Cal.*



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TAPE INSURES RAPID INVENTORY FLOW IN TEXTILE MILL STORAGE AREAS

See how easily and efficiently "SCOTCH" BRAND Lane Marking Tape No. 471 organizes work and storage areas. Sticks at a touch to any clean dry surface. No down time—trucks can roll over it immediately after application.

"SCOTCH" Lane Marking Tape simplifies storage, stock inventory, production and plant traffic problems. Eight vivid colors make designation of storage areas and traffic lanes easy. And "SCOTCH" Lane Marking Tape lasts—wears 5 times as long as conventional materials—is unaffected by most acids, greases, or solvents.

"SCOTCH" Lane Marking Tape is easily applied to concrete, block, tile, or wooden floors by hand or with the "SCOTCH" BRAND Lane Marking Applicator M-77. Put this housekeeping helper to work in your plant.

What's your marking problem? Traffic lanes . . . No Smoking Areas . . . Inventory storage? Ask your nearest "SCOTCH" BRAND Tape Distributor, or write: 3M Company, 900 Bush Avenue, St. Paul 6, Minn., Dept. IAR-100

When tape costs so little, why take less than "SCOTCH" Brand?

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EXPORT: 99 PARK AVE., NEW YORK 16. CANADA: LONDON, ONTARIO.

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. . . WHERE RESEARCH IS THE KEY TO TOMORROW

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JENKINS PRODUCTS---
Engineered for Progressive Mills

SEE US AT THE TEXTILE SHOW
BOOTH 838
OCT. 3-7 GREENVILLE

SPINNING CYLINDERS
CARD SCREENS

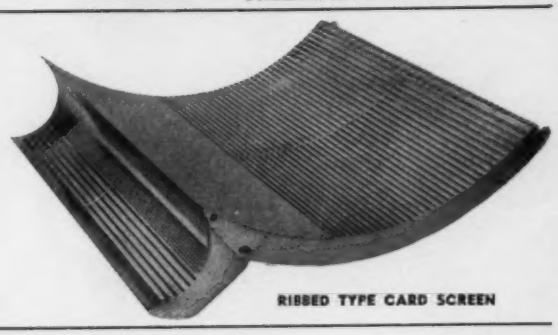
Today, more and more, Textile leaders are demanding JENKINS DYNAMICALLY BALANCED Spinning Cylinders, machined on exclusive Jenkins equipment to give smoother performance and more uniform yarn quality . . . also, Jenkins Card Screens with advanced-design grid bars, and other Jenkins features which insure perfect screen settings.

JENKINS Spinning Cylinders and Card Screens are engineered by men who for the past 48 years have pioneered in engineered metal products . . . for mills that have moved continually forward with higher quality at lower cost.

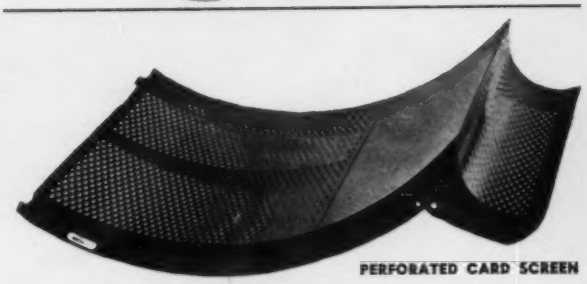
Jenkins engineers are now pioneering the even-better products of the future. To be sure you are getting the newest advantages first, standardize on JENKINS equipment. Ask to see the newest brochure on our complete line of Services.

SEE US AT BOOTH 838

DYNAMICALLY BALANCED CYLINDERS



RIBBED TYPE CARD SCREEN



PERFORATED CARD SCREEN

CARD PLATES

Precision made CARD PLATES of quality rolled steel. Ground and polished—inside and outside. Straight and true to close tolerances. Standard or special—for all makes and sizes.

MOTE KNIVES

Manufactured and/or re-sharpened. Ground to smooth and sharp knife edge—any quantity. Made of quality cold rolled steel—straight and true to close tolerances.

GENERAL MACHINE SHOP WORK

SINCE 1912
JENKINS
METAL SHOPS
INCORPORATED
ENGINEERED PRODUCTS

JENKINS METAL SHOPS, Inc.

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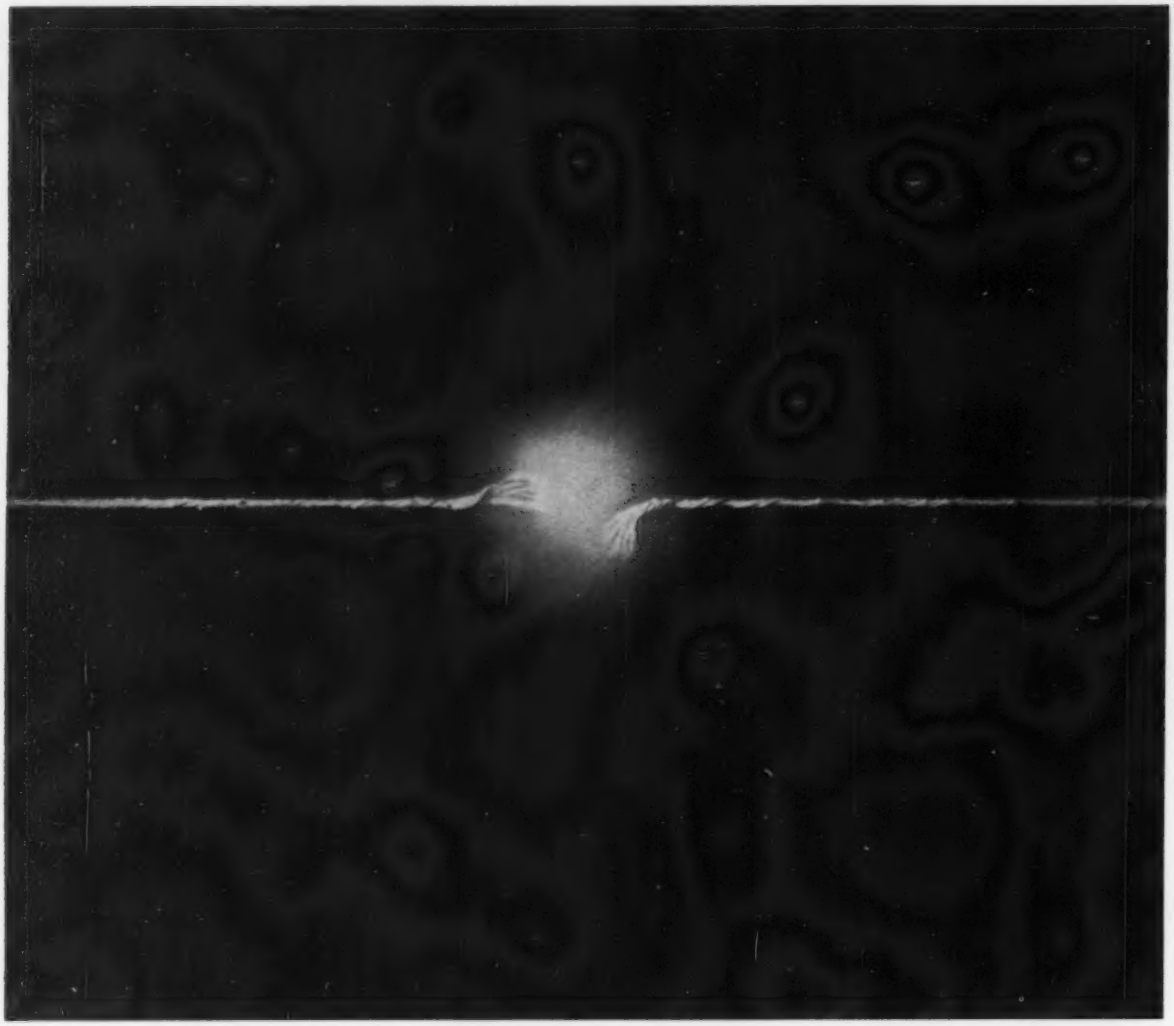
GASTONIA, NORTH CAROLINA

ALLIS-CHALMERS



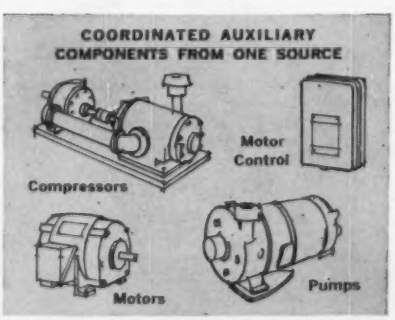
Yarn breaks braking your production?

get temperature and humidity control with Allis-Chalmers equipment

You can produce better quality faster when your mill is air conditioned for control of temperature, cleanliness and humidity. Breaks are reduced. Operating speeds can be increased. Finished products have a more consistent high quality.

The Allis-Chalmers textile industry team is well acquainted with your needs for air conditioning systems and stands ready to assist you, your consulting engineer or equipment supplier. Only A-C can furnish one-source responsibility for auxiliary components . . . a complete line of pumps, motors, motor control, water conditioning equipment, air compressors, transformers, switchgear and substations.

For information on any of these products or other Allis-Chalmers products for the textile industry, call your nearby A-C representative or write **Allis-Chalmers,** *Industrial Equipment Division, Milwaukee 1, Wisconsin.* A-1331



Announcing 40-B SPECIAL

RANDO-FEEDER *and* RANDO-WEBBER

for processing short fibers

Now you can produce a continuous uniform RANDO-WEB® structure from 100% short fibers such as bleached sulphite pulp, linters, flock and blends containing high percentages of fiberized paper, fiberized leather and chopped flexible plastic foam.

Special RANDO-FEEDER®(s) and RANDO-WEBBER®(s) are also available for processing 100% metal fibers, unusual and special materials.

Simplicity of operation, minimum space requirements, low maintenance, manpower and overhead, together with high yield of quality production are some of the advantages of this modern, efficient, continuous method for manufacturing specialty products.

For more detailed information, write for our new Bulletin No. 106.

CURLATOR...World's Leading Manufacturer of Fiber Web Processing Machinery

EXPORT REPRESENTATIVE:
Lendt & Company
535 Fifth Ave., New York 17, N. Y.

SOUTHERN REPRESENTATIVE:
Parrott & Ballentine
3440 Augusta Rd., Greenville, S. C.

TEXTILE DIVISION
CURLATOR®
CORPORATION
EAST ROCHESTER, NEW YORK

Complete Freedom of Styling

with the full range of HOECHST DYESTUFFS

REMAZOL
Vinyl sulfon fiber reactive dyes

NAPHTOL
Exclusive specialty and conventional Naphtols and fast color salts and bases

HOSTAGEN
Stabilized azoics for printing

HOSTAVAT
Broad range of special and common vat dyes for printing and dyeing

ANTHRASOL and INDIGOSOL
Complete line of leuco vat esters

REMALAN FAST DYES
1:2 metal complex dyes for wool, nylon and some other man-made fibers

REMASTRAL DYES
Fast to light direct dyestuffs

HOSTAFIL, HOSTATONE
Water and oil phase pigments for printing cotton and rayon

CHROME DYES
Specialty chrome colors for printing cotton and rayon

Also direct, acid, metallized acid, basic and SPECIALTIES FOR OTHER COLOR CONSUMING INDUSTRIES

HOECHST

INDIGOSOL is a registered trademark of DURAND & HUGUENIN, S.A., Basle, Switzerland

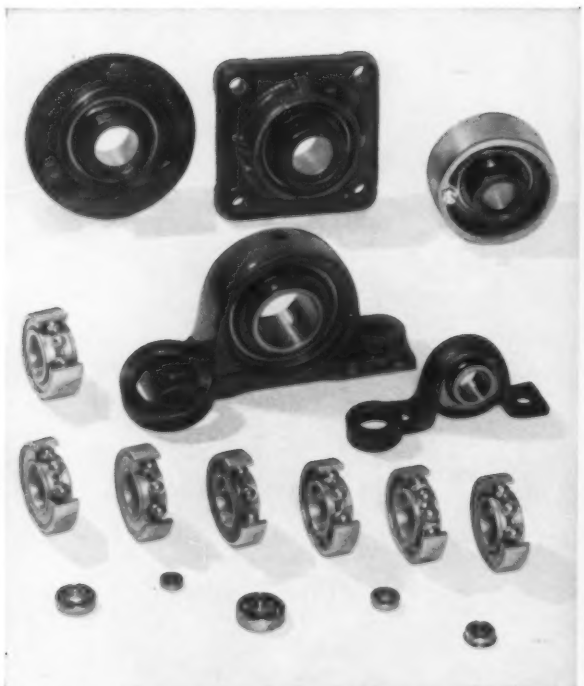
CARBIC-HOECHST CORPORATION

MOUNTAINSIDE, NEW JERSEY • Tel: ADams 2-9550

CHARLOTTE • LOS ANGELES • PHILADELPHIA • WEST WARWICK, R. I.

See how Fafnir can "smooth the going" when you need textile equipment ball bearings!

Ball bearing experts to the textile industry — Fafnir's engineering files cover almost 40 years of service to the textile industry. Fafnir textile bearing specialists are familiar with your requirements . . . expert in handling them.



Over 10,000 types and sizes, including a variety of precision tolerances, in Fafnir Ball Bearings can often eliminate the need for "specials". Shown are basic radial bearings, extra-small bearings, and others with typical arrangements of seals and shields.

Capacity is equal to the heaviest demand! Fafnir is America's largest independent ball bearing manufacturer . . . a dependable source of supply. 26 branch offices, 18 warehouses. Over 1000 distributors for replacement needs. The Fafnir Bearing Company, New Britain, Conn.

FAFNIR
BALL BEARINGS

Eastman now offers textile finishers 3 basic types of polyethylene

New EPOLENE resins enable textile chemists to formulate broader range of softeners

The wide range of properties now available in Eastman's Epolene series provides greater flexibility in formulating polyethylene emulsions for softening "wash and wear" cottons and synthetics, and for textile lubricants and sizes.

Permanent, low in color, non-chlorine retentive and easy to prepare, emulsions based on Epolene polyethylene give you a practical and economical method for improving the hand, abrasion resistance and tear resistance of "wash and wear" treated fabrics.

With Epolene, you can prepare any kind of emulsion system, cationic, anionic or non-ionic, with solids contents of up to 40%.

Choose from three different low-molecular-weight resins to obtain the right emulsion properties and finishing characteristics for your equipment and service.

Epolene E is the highest-molecular-weight resin of the three. It produces stable, low-color emulsion systems of superior quality for use in softening cottons or synthetics, or as a lubricant to reduce needle-cutting and increase sewability. Like other Epolene resins, it needs no curing, lasts through repeated launderings and resists dirt pick-up and redeposition.

Epolene LVE, a new resin type, has a lower melt viscosity than has Epolene E, thus offering somewhat better handling characteristics. Epolene LVE is softer than other resins in the series. The stability of its emulsions in the presence of resin catalysts is outstanding, especially at the low end of the pH scale, as indicated by its relatively high HLB factor.

Epolene HDE is the first high-density, emulsifiable low-molecular-weight polyethylene on the market. Because it is much harder, it improves significantly the abrasion resistance and tear resistance in cotton and cotton blends. Its stability and permanence are excellent. It, too, offers easier handling characteristics during emulsion preparation because of its low melt viscosity.

If you are formulating polyethylene softeners and would like to produce stable, economical emulsion systems of superior all-'round characteristics, look to Epolene from Eastman. Let us introduce you, also, to new time-saving and cost-cutting emulsifying techniques developed at our textile laboratories. For more information on the formulating and performance advantages of these superior polyethylene resins or for specific formulating assistance, write your nearest Eastman office. We invite your inquiry.

Property	Epolene E	Epolene LVE	Epolene HDE
Molecular Weight	2500	1500	1500
Density	0.938	0.939	0.956
Ring and Ball Softening Point, °C. (ASTM D-36-26)	104-108	104-105	110-111
Penetration Hardness (100 g./5 sec./77°F., tenths of mm.)	2	5	1
Color (liquid), Gardner scale, max.	2	2	2
Brookfield Viscosity (cps. @ 120°C.)	1500	400	455

Epolene

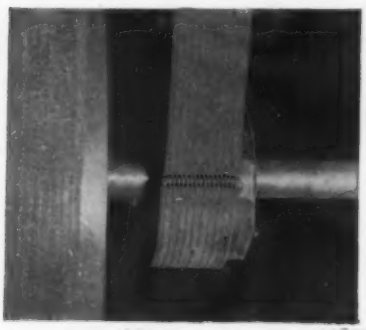
EASTMAN low-molecular-weight polyethylene resins

SALES OFFICES: Eastman Chemical Products, Inc., Kingsport, Tennessee; Atlanta; Chicago; Cincinnati; Cleveland; Detroit; Framingham, Massachusetts; Greensboro, North Carolina; Houston; New York; Philadelphia; St. Louis. **West Coast: Wilson and Geo. Meyer & Company,** San Francisco; Los Angeles; Portland; Salt Lake City; Seattle.

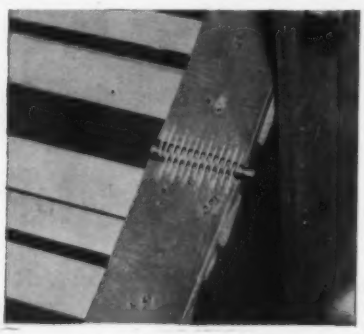
"ENDLESS APRONS ARE HARD TO INSTALL"

says E. M. HYDE, Project Engineer at Proctor & Schwartz, Inc.

A complete batt making line used in the manufacture of cotton batt for top quality mattresses. The unit is designed and built by Proctor & Schwartz of Philadelphia, Pa.



Close-up of Clipper lacing used on drive belt of feed in batt making line



Close-up of Clipper lacing used on a traveling apron in the line

CLIPPER Joints ease installation problem, are as flexible and durable as the belt itself

Feed belts and drive belts are easy to install when Clipper laced. Joints as smooth and durable as the belt itself are easily made by one man using Clipper method. Clipper lacers develop up to 45,000 pounds of pressure to imbed specially designed Clipper steel wire hooks flush with the belt. The strain is evenly distributed across the width of the belt so that the joint is smooth and durable. It operates well on both small and large diameter rollers.

When you have two ends to join, chances are you can join them easier with Clipper hooks and lacers. Any type of belting material in various widths and up to 13/32 inch thick can be laced faster and better by Clipper.

For more information — Detailed product information and case history examples of Clipper machine lacing benefits are contained in Bulletin No. 157. Send for your free copy today.

Ask your Industrial Distributor for Clipper Products

Clipper BELT LACER COMPANY

980 Front Ave., N. W., Grand Rapids 2, Michigan

SUPPLIER NOTES

W. E. Beddingfield, president of Piedmont Safety Appliances, has moved into the Greenville, S. C., area to better serve the textile industry with surveys, fire demonstrations, and recharge service for **Ansul Chemical Company equipment.**

A new firm, **E. H. Jacobs Mfg. Co.,** has been formed to consolidate the E. H. Jacobs southern and northern division of The Bullard Clark Co. The new firm will be located in the manufacturing facilities formerly occupied by the southern division in Charlotte, N. C.

Scott & Williams, Inc. has announced the appointment of Roy W. Bennett as manager of the divisional sales office in Reading, Pa.

The International Salt Co. recently dedicated its new $2 million administrative headquarters at Clarks Summit, Pa.

Paul R. Peterson has been promoted to a technical sales representative for **Willcox & Gibbs Sewing Machine Co.** Mr. Peterson will cover the central Pennsylvania territory. John Constabile has been named to replace Mr. Peterson in the Baltimore area.

Wica Chemicals, Inc., has appointed Gene N. Cline as technical sales representative.

Francolor, Inc. has been appointed exclusive sales representatives for **Alginates Maton** of Paris, France.

Dr. Egon Stern has joined the **Gagliardi Research Corp.,** as senior research associate.

William Meehan has been named a salesman for the Geigy Dyestuffs division of **Geigy Chemical Corp.** in the New England states. Mr. Meehan will maintain an office in Newton Upper Falls, Mass.

Bobby Wright has been promoted to sales manager for **F. A. Young Machine Co., Inc.** John W. Long has been named representative for the

UNEQUALED!

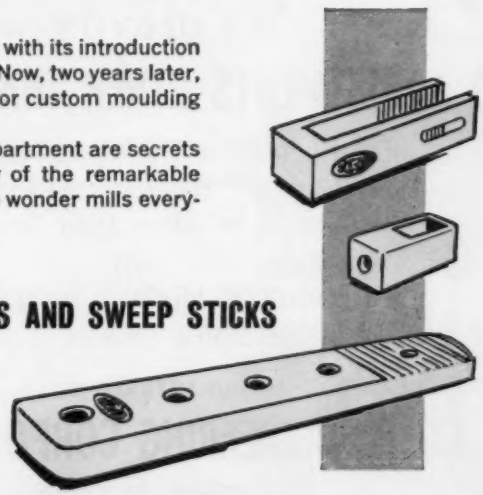
Garland

PLASTIC* LOOM PICKER

*HIGH DENSITY... HIGH MOLECULAR WEIGHT POLYETHYLENE

Two years ago, Garland startled the textile industry with its introduction of the 1st plastic picker by an American manufacturer. Now, two years later, Garland is still startlingly way ahead with its facilities for custom moulding this miraculous plastic material.

Hidden in Garland's Research and Development Department are secrets that produce undreamed-of lastability and efficiency of the remarkable use-proved plastic loom picker and other products. No wonder mills everywhere have depended on Garland for over 94 years.



LUG STRAPS AND SWEEP STICKS

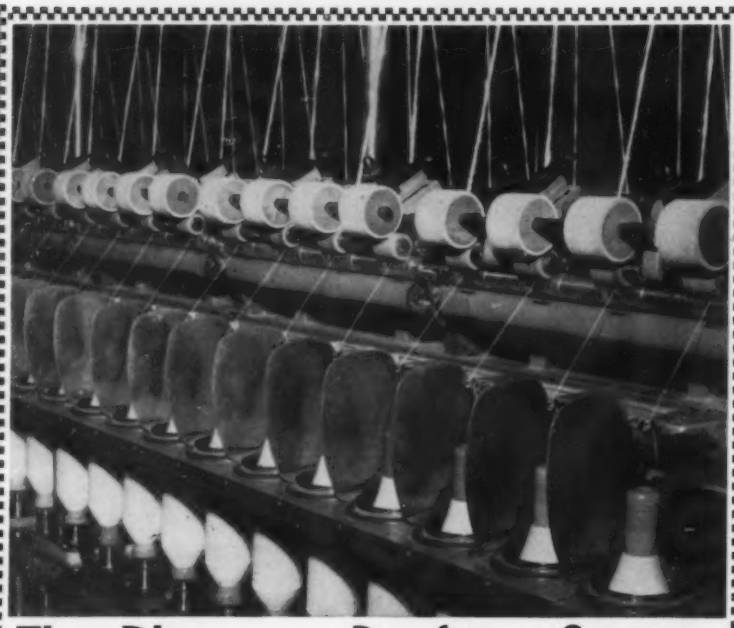
GREENVILLE SHOW BOOTH 106

WRITE FOR COMPLETE INFORMATION.

Garland MANUFACTURING CO.

56 WATER STREET
SACO • MAINE

Manufacturers of PLASTIC AND RAWHIDE LOOM PICKERS, SPONGE LEATHER BUNTERS, LEATHER PRODUCTS, RAWHIDE HAMMERS AND MALLETS, ROD LUBRICANT.



The Phantom Drafting System

HAS no suspension bars
no nebs or overarms
no cradles
no tension pulleys
no gravity weights

NO ADJUSTMENTS OTHER THAN WEIGHT

NEW and Simplified Top Roll Assembly
NEW Principle of Positioning and Alignment
NEW Principle of Bottom Apron Tension Without Tension Pulleys
NEW Principle of Adjustable Spring Pressure
NEW Principle of Weight Release

MANUFACTURED BY

COLE ENGINEERING CORPORATION
Columbus, Georgia

and

A. B. CARTER, Inc.
Gastonia, North Carolina

SUPPLIER NOTES

(from page 56)

Georgia and Tennessee areas. David F. Young has joined the sales staff and will travel the territory of North and South Carolina. * * * The general repair and parts departments have been incorporated as a subsidiary of the parent firm and will be known as **F. A. Young Textile Repairs, Inc.** James A. Rayfield has been named plant manager and Morgan Ruppe has been appointed vice-president and manager. The latter firm is located in the Price Street building in Gastonia, N. C.

John A. Rauth has been promoted to the position of salesman for worsted machinery of **Whitin Machine Works.**

American Viscose Corp. has opened district sales office for its Industrial Packaging Department in Atlanta, Ga. Herbert C. Schafer has been named district manager.

Tait Yarn Co., Inc., has announced the appointment of **Collingwood, Ibach, and Company** as sales agent in North Carolina, South Carolina, and Virginia.

Albert E. Sasseen has been appointed technical sales representative for the Atlanta territory for **Putnam Chemical Corp.**

International Latex Corp. has acquired **Southern Latex Corp.** and its subsidiaries. The latter firm will operate as an autonomous company with no change in management.

Jerome T. Kratina, sales representative, formerly servicing the New York area, has been transferred to the northern and central New Jersey territory for the Heyden Chemical division of **Heyden Newport Chemical Corp.**

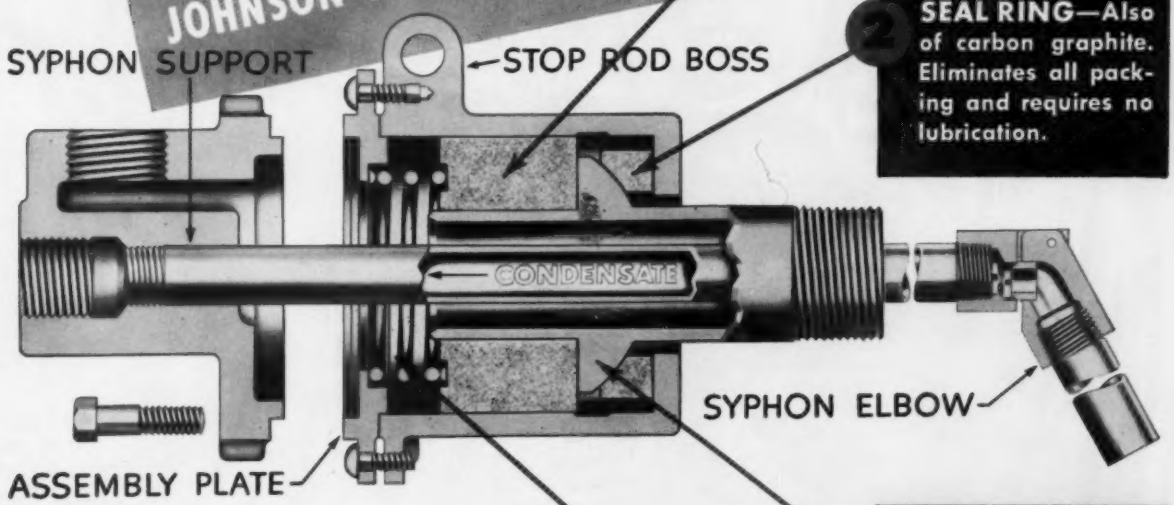
The Bijur Lubricating Corp. has announced the appointment of **Cotton-McCauley & Co., Inc.,** as a distributor to the textile mills in the U. S. and Latin America.

New manufacturing equipment, buildings, service areas, warehouses, and office space will be provided at both Hopewell and the Chesterfield plants of the National Aniline division of **Allied Chemical Corp.** Completion of the multi-million dollar expansion program is scheduled for mid-1961.

Continued on page 62

Only 4 INTERNAL PARTS!

TYPE SB2-P JOHNSON JOINT and JOHNSON SYPHON ELBOW



1 GUIDE—Makes the joint self-supporting. It is of self-lubricating, long-wearing carbon-graphite.

2 SEAL RING—Also of carbon graphite. Eliminates all packing and requires no lubrication.

3 NIPPLE—Rotates with the roll, and seals against the ring.

4 SPRING—Serves for initial seating only. In operation joint is pressure sealed.

Notice how straightforward and simple is the design of this Johnson Joint. This unmatched simplicity means fewer breeding places for trouble... simplifies overhaul and repair out in the field. At the same time the joint is completely packless, self-adjusting, self-lubricating and self-supporting.

In this Series 3000 Type SB2-P the assembly plate holds the internal parts in position when head is removed. This makes it a perfect teammate for the Johnson Syphon Elbow which can be inserted or withdrawn right through the joint.

Test it yourself—We'll gladly supply a pair of the units shown for 90 day trial right in your own mill; no obligation of course. Write for details and literature.

Products of The Johnson Corporation
815 WOOD ST., THREE RIVERS, MICH.
Rotary Pressure Joints • Compressed Air Separators and Aftercoolers
Direct Operated Solenoid Valves • "Instant" Steam Water Heaters

Announcing...

From
Staley's Research
Center

A major advancement in stream pollution control!

OXYTROL

Low B.O.D. STARCH

Now, for the first time—a low B.O.D. starch for warp sizing—with only a fraction of the B.O.D. of regular textile starches. Recommended for sizing a variety of yarns—and at low solids levels!

Now available in limited pilot plant quantities—OXYTROL will be in full commercial production on completion of Staley's new plant

Here's another Staley first—an economical warp size which provides an answer to water disposal problems that have long confronted the textile industry.

This latest Staley development, new OXYTROL, is a low B.O.D. (biochemical oxygen demand), chemically modified starch. Standard 5-day B.O.D. tests prove it exerts some 70% less B.O.D. than regular starches.

Free-flowing, cold water swelling, Staley's new OXYTROL starch desizes easily. And can be used at any desired temperature.

OXYTROL starch gives better weaving protection. Actual mill runs demonstrate cotton warp sizes of 5% to 7% solids, made with OXYTROL, equal the performance of warp sizes of 10% to 12% solids, made with regular starch sizes.

Save 13¢ to 21¢ per pound on your low B.O.D. sizing costs. Investigate and compare the many advantages new OXYTROL low B.O.D. starch can bring to your operation. For further information, see your Staley representative, or write:

Artist's drawing of Staley's new six story OXYTROL production plant now under construction. Scheduled for completion sometime later this year, plant will house new process equipment developed by Staley's.

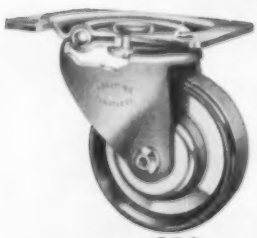
A. E. STALEY MFG. CO.
Decatur, Illinois

ATLANTA • BOSTON • CHICAGO • CLEVELAND • KANSAS CITY • NEW YORK • PHILADELPHIA • SAN FRANCISCO • ST. LOUIS

NEW! Faultless 100 and 500 SERIES Textile Casters

Series 500
Rigid Plate
Caster

Snagged threads that bind doff box or truck casters needn't stop your textile production! Faultless has designed NEW *textile casters* with *wide*, easy-to-get-at *clearance* between caster wheel and horn. Low cost Faultless 100 and 500 Series Casters also feature corrugated steel construction for added strength, ball bearing assembly in hub to absorb side thrust, deep drawn thread guards, and wide choice of wheels to suit a variety of load and floor conditions.



Series 100
Swivel Plate Caster

Special sturdy King Pin; large diameter ball bearings roll in uninterrupted, lubricated raceway.

Ask Your Distributor

Your local Faultless Industrial Distributor has a wealth of information on caster applications, and he maintains a caster stock. Both he and the local Faultless Sales Engineer will be glad to work with you.

NOELTING
Faultless Casters

Faultless Caster Corporation
Evansville 7, Indiana
Branch Offices in principal cities; see the Yellow Pages of the telephone book under "Casters."
Canada: Stratford, Ontario

SUPPLIER NOTES

(from page 58)

The chemical specialties division of **Ciba Co., Inc.,** has announced the promotion of Werner F. Schulz to the west coast territory, working out of the Los Angeles office.

Edmund L. Lauber, formerly director of merchandising for The Chemstrand Corp., has been elected vice-president and treasurer of **Singer-Fidelity, Inc.**

R. Houston Hale has been named manager of the New York district sales office of the **Chemstrand Corp.**

More than $9 million will be spent by **E. I. du Pont de Nemours and Co., Inc.,** to modernize and expand facilities at the Seaford nylon plant. The program will include installation of new equipment in the technical laboratory and a new building to house certain new operations, plus inspection, packing, and shipping space.

Harry W. Barrow has been named advertising manager of **The Dow Chemical Company's** textile fibers department. Mr. Barrow will be located in the fibers sales office in the Empire State building.

Erwin G. Walker has been appointed to the newly created position of sales manager of the south for the fibers division of **American Cyanamid Co.** Mr. Walker will be headquartered in the Charlotte, N. C., sales office.

Sonoco Products Co. has acquired the equipment and facilities of **Dixie Paper Tube Co.** The plant will continue to operate in the same location, and it is anticipated that additional equipment will be installed at a later date.

A $13 million chlorine and caustic soda plant is being constructed at Charleston, Tenn., by **Olin Mathieson Chemical Corp.** The new unit will have a capacity of 180 tons a day and will supply southern markets as well as the firm's manufacturing operations.

The chemicals division of **Eastman Chemical Products, Inc.,** subsidiary of Eastman Kodak Co., has established a new office in the Snyder Square Bldg., Buffalo, N. Y. The new office is under the supervision of George O. Traube, who will represent the company in the sale of in-

Continued on page 256

Visit us at Booth No. 441, Southern Textile Exposition, Greenville, S.C., Oct. 3-7.

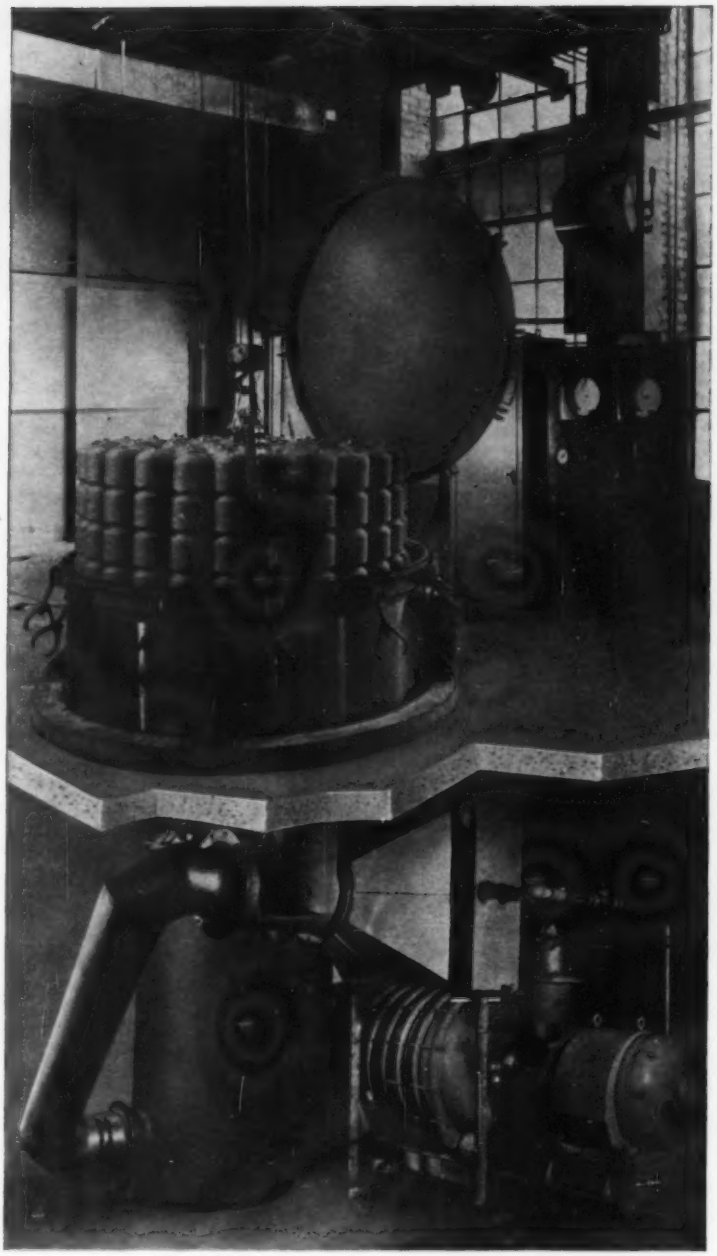
Improve quality–

lower handling costs with...

EAGLE®
easy flow starch

WRITE OR PHONE *Corn Products for expert technical assistance...*
helpful data on these fine products for the Textile Industry:
GLOBE® · EAGLE® · FOXHEAD® · TEN-O-FILM® and CLARO® starches · GLOBE® · EXCELLO® dextrines.

CORN PRODUCTS COMPANY INDUSTRIAL DIVISION • 10 East 56 Street, New York 22, N. Y.



Spinner's Processing Co. Achieves New Economies in Packaged Yarn Drying

At Spinner's Processing Co., Spindale, N. C., Turbo's new recirculating-type Extractor-Dryer for packaged yarns is producing these results:

Shorter Cycles . . . With the new Turbo machine, extracting-drying time for mercerized yarn is 35 to 40 minutes. This compares with Spinner's previous experience of 45 minutes in a conventional extractor, *plus* 3 to 4 hours in a port dryer.

Improved Yarn Quality . . . Spinner's Processing Co. reports that yarn processed in the Turbo Extractor-Dryer is softer, more uniform . . . runs better in knitting. Conditioned air recirculated in the machine prevents over-drying.

Reduced Handling . . . One operation instead of two.

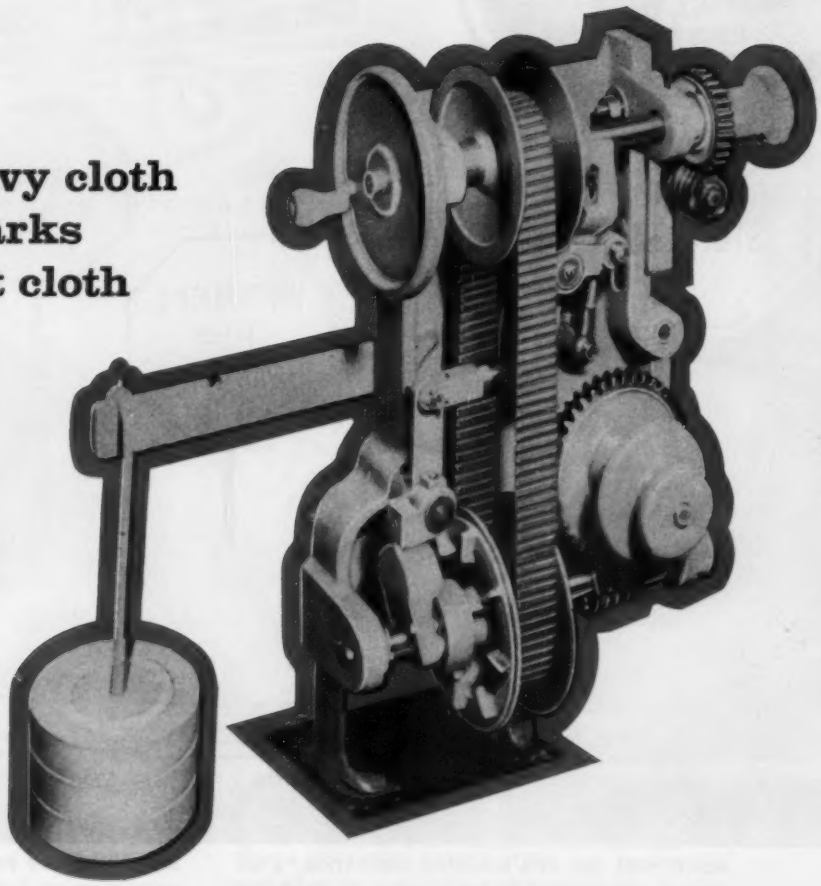
Less Space . . . With the Turbo Extractor-Dryer, basement installation (illustrated) fits a space only 11 x 11 feet square. Uses ⅓ the space of conventional equipment.

A new Turbo Extractor-Dryer, engineered to meet your requirements, can produce similar results for you. Bulletin on request.

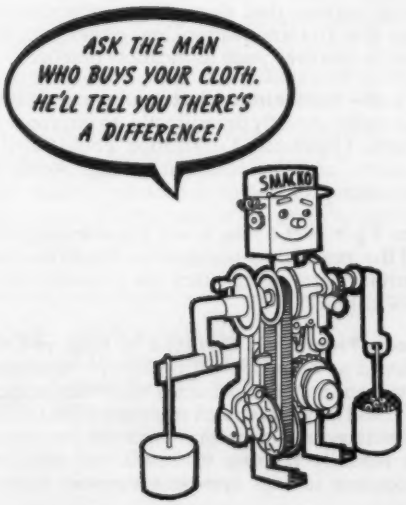
TURBO

TURBO MACHINE COMPANY, LANSDALE, PA., U.S.A.

Eliminate wavy cloth
reduce set marks
weave perfect cloth
with the...



Hunt Let-Off®



Now! Weave more premium quality cloth by equipping your looms with the Hunt Let-Off. This positive and automatic Let-Off maintains a constant tension from full beam to empty. It practically eliminates wavy cloth.

Mill experience has proved that the Hunt substantially decreases seconds, reduces set marks, decreases labor costs and loom part replacement costs.

Ask your customer about the better quality cloth from looms equipped with the Hunt Let-Off.

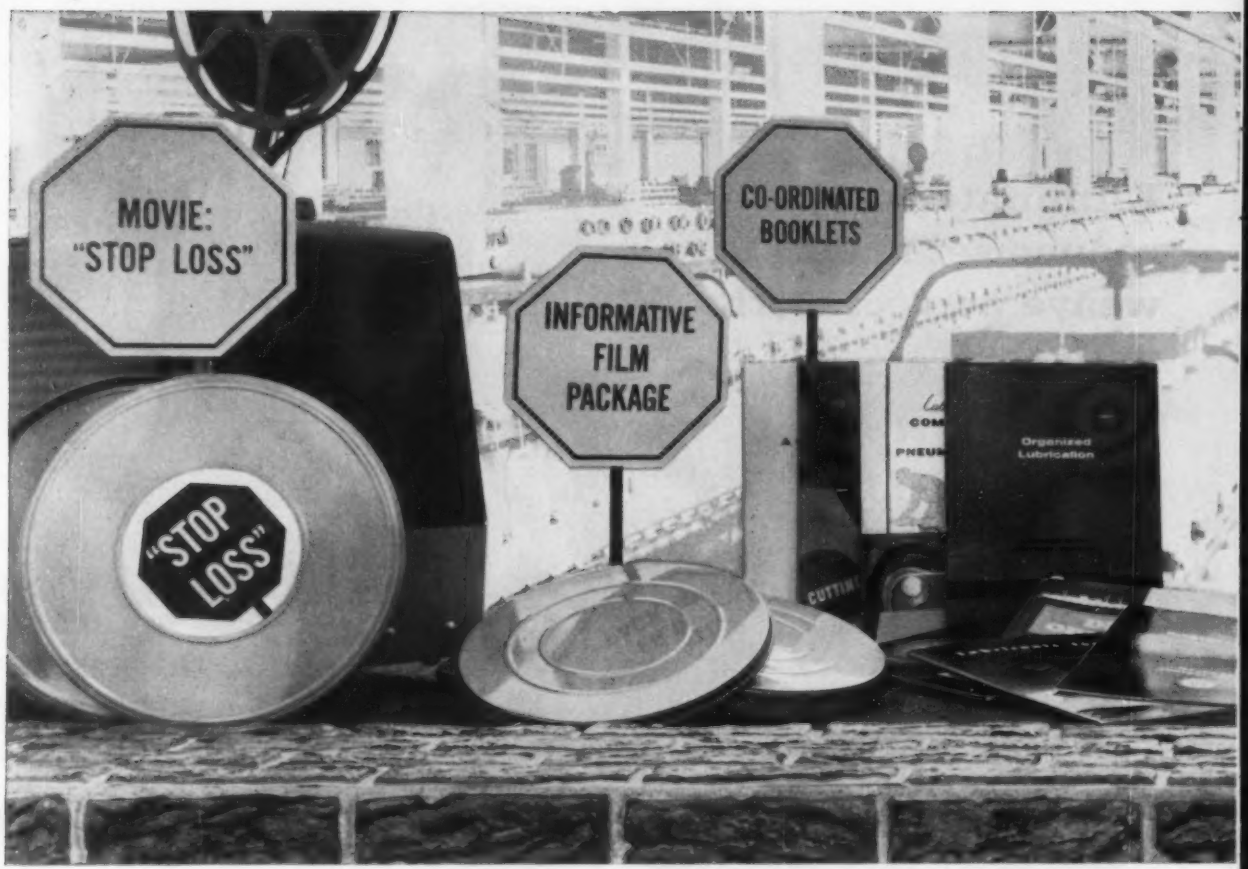
The Hunt is available for all models of looms in place, should be specified when ordering new Crompton and Knowles and Draper looms.

WRITE, WIRE OR PHONE

SOMACO

SOUTHERN MACHINERY COMPANY

Box 3217-Station A, 5806 Augusta Road, Greenville, S. C., CRestwood 7-2116



MOVIE: "STOP LOSS WITH ORGANIZED LUBRICATION," a new 20-minute color-and-sound film that dramatizes the opportunities for cost control through Organized Lubrication.

INFORMATIVE FILM PACKAGE for mill departments consists of movies on greases, hydraulic oils, cutting oils, etc., designed to help those involved with their selection and application.

HERE ARE THE TOOLS THAT CAN HELP YOU

INCREASE YOUR NET PROFITS

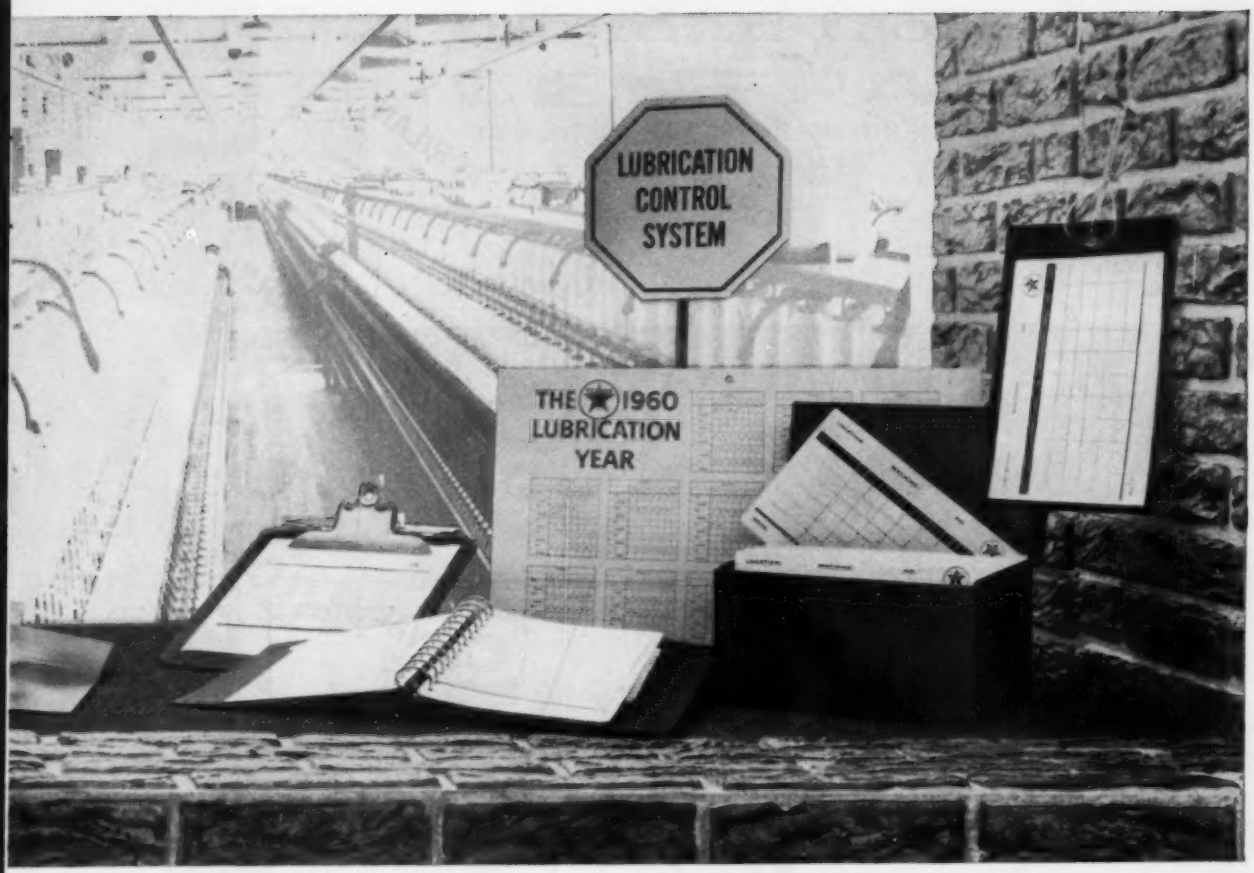
Texaco's new "Stop Loss" Program is designed to cut maintenance costs by modernizing lubrication practices. If yours is an average mill, the results can add 4 per cent to your net profit.

Even if your mill is a highly efficient operation, it is *still* virtually certain that there is an opportunity for cost control that you are overlooking—either partially or completely. It involves your lubrication practices.

Here's the reasoning: Most equipment failures can be traced, either directly or indirectly, to improper lubrication practices. Organized Lubrication could have prevented the failure—and the resultant savings would have gone directly into profits.

The 4 per cent figure is not hypothetical. It's what the Small Business Administration has found the average U. S. industrial operation can tack on to profits by *organizing its lubrication.*

Texaco's Program is designed to help you. Texaco has developed a "Stop Loss" Program specifically designed to help you cut maintenance costs via better lubrication practices. It will help you stretch equipment life, minimize downtime, reduce lube inventory, even cut purchasing costs. It costs virtually nothing to install, yet will start turning maintenance savings into profits almost immediately.



CO-ORDINATED BOOKLETS covering almost every facet of lubrication can be used as guides in specific areas.

TEXACO LUBRICATION CONTROL SYSTEM takes the guesswork out of all lubrication scheduling—makes sure that the right lubricant goes in the right place at the right time.

BY AS MUCH AS 4 PER CENT!

Can your mill pass this test?

Q. Is there anyone in your mill with direct responsibility for all lubrication? Yes ☐ No ☐

Q. Is there any mill-wide system for making sure that equipment gets lubricated on schedule? Yes ☐ No ☐

Q. Are your oilers qualified men with a knowledge of the mechanisms to be lubricated? Yes ☐ No ☐

Q. Have you made a lubrication study to determine if the right lubricants are being used at the proper frequencies? Yes ☐ No ☐

If the answer is "no" to any of the above questions, it's virtually certain that a Texaco "Stop Loss" Program can improve your profit picture.

See for yourself how "Stop Loss" works! Texaco has just released a new color-and-sound movie to dramatize the benefits of good lubrication practices. It's called "Stop Loss With Organized Lubrication" and we think it would be profitable for you to see it. For an early showing in your mill, mail the coupon today! Texaco Inc., 135 East 42nd Street, New York 17, New York.

MAKE YOUR RESERVATION TODAY!

TEXACO INC., Dept. TI-30
135 East 42nd Street
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I would like to see your new movie "Stop Loss With Organized Lubrication." Please call to arrange a showing.

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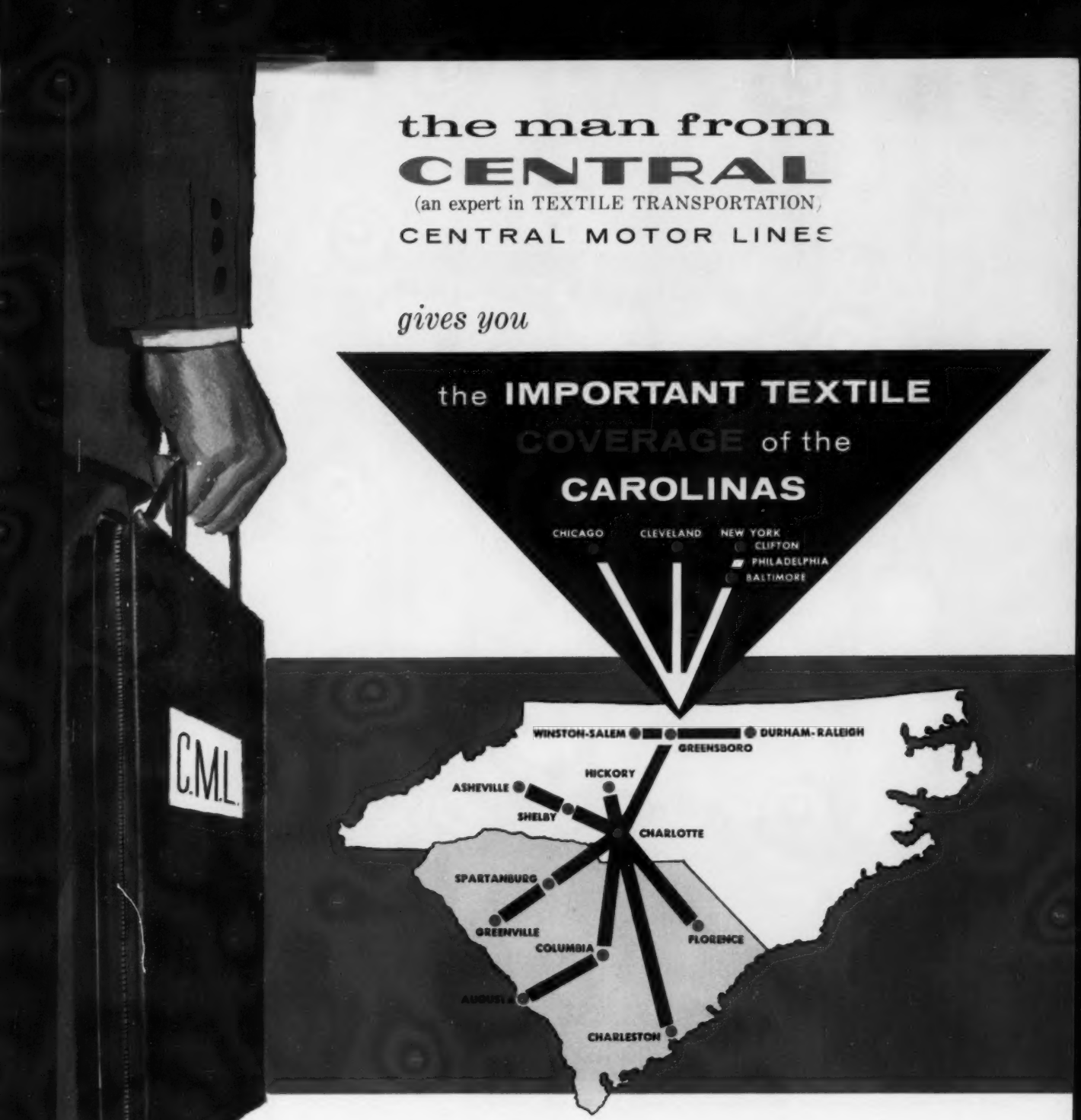

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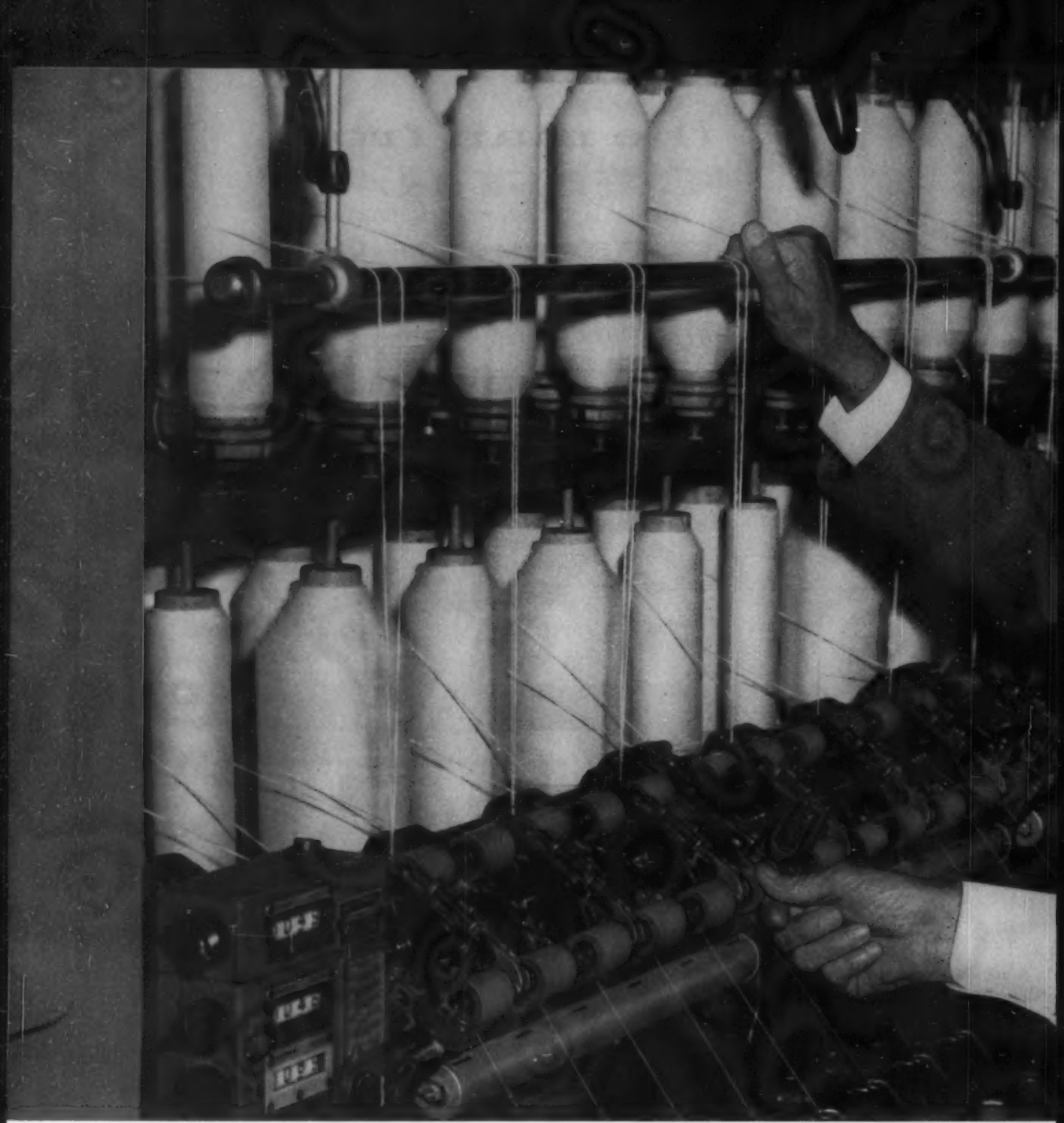


For best performance on any frame . . .

When selecting spinning cots, mill men are guided by a single consideration: Which type will turn out maximum production of high-quality yarn? There is no one answer to that question . . . because there is no one cot material that will perform equally well with every possible combination of frame and fiber. • In the broad line of Accotex Cots, however, there are materials that will give good performance with any fiber or blend, and on any spinning system. • Where a high front-roll lap-up rate is reducing production, J-490 Cots or one of the new anti-static Accotex materials will help control it. If excessive eyebrows are causing yarn irregularities or too many ends down, Accotex NC-762 will keep

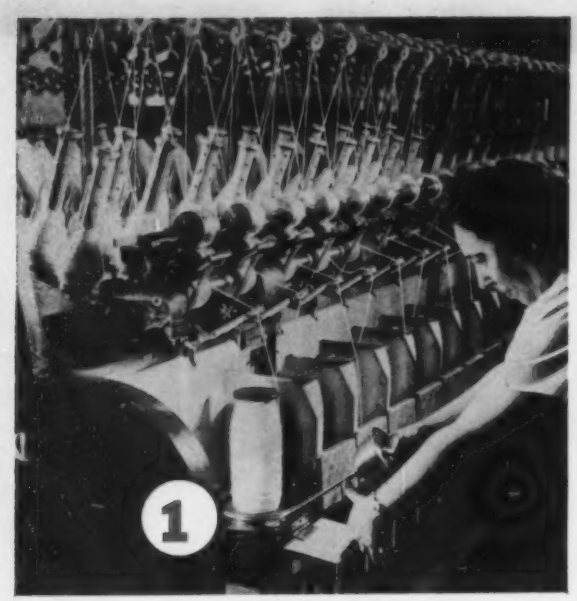
Stanley H. Frary, Superintendent of the King Philip Div. Plant D of Berkshire Hathaway, Inc., at Warren, Rhode Island, discusses yarn quality with Armstrong representative Guy Baer.

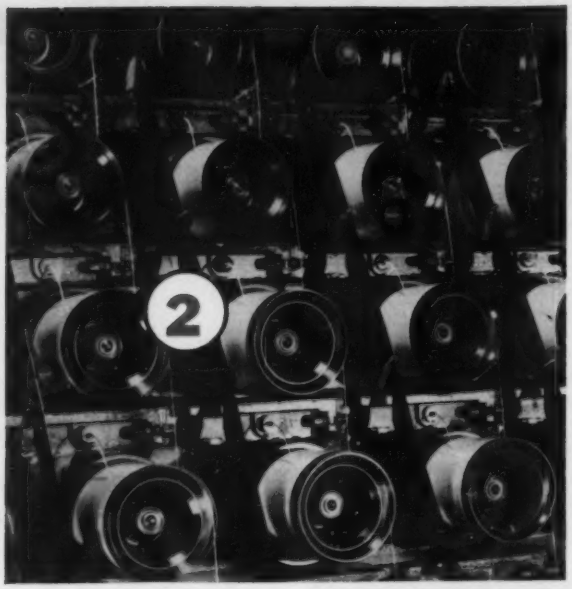
Armstrong Accotex Cots

them at a minimum. And there are soft cots in the Accotex line which will provide better yarn control and increased break-factor on certain frames. • Your Armstrong man can help you with virtually any roll covering problem. His specialized training and wide experience provide answers that can be depended on. Call him or write to Armstrong Cork Company, Industrial Division, 6510 Ivy Street, Lancaster, Pennsylvania.

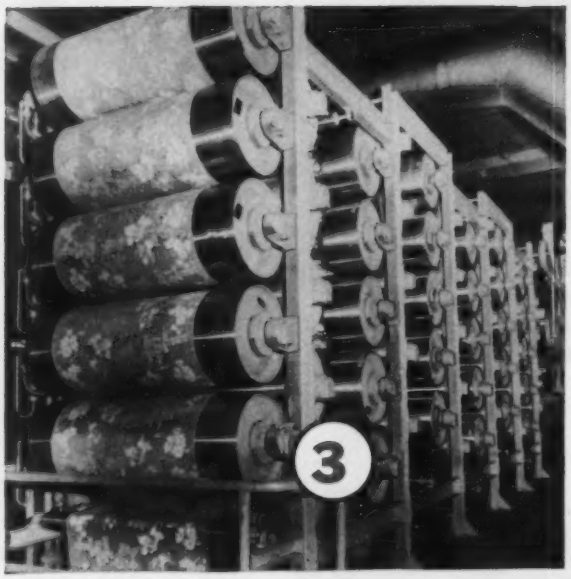
Armstrong ACCOTEX COTS

1860-1960 Beginning our second century of progress





SPIN, TWIST, FINISH... ESSO LUBES LIGHTEN THE WEAR



1. TELURA® spindle and twister-ring oils resist oxidation and discoloring. Highly refined to lubricate for long periods without forming sludge or varnish. Optimum viscosity and "metal-wetting" ability for good lubrication and vibration damping.

2. BAYOL® white oils lubricate rayon and synthetic fibers. Make a better fiber finish. Protect them from abrasion and breakage, give positive control over fiber friction. Thoroughly refined to resist discoloration and oxidation.

3. NEBULA® EP multi-purpose grease lubricates steam-heated can bearings and other "hot spots". Stays on the job under high temperature and extreme pressure conditions. Lubricates bearings of all kinds for extended periods.

Esso lubricants can help you lighten wear from one end of the mill to the other. Get more information on them from your local Esso office, or write: Esso Standard, Division of Humble Oil & Refining Company, 15 W. 51st St., New York 19, N. Y.

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In industry after industry..."ESSO RESEARCH works wonders with oil"

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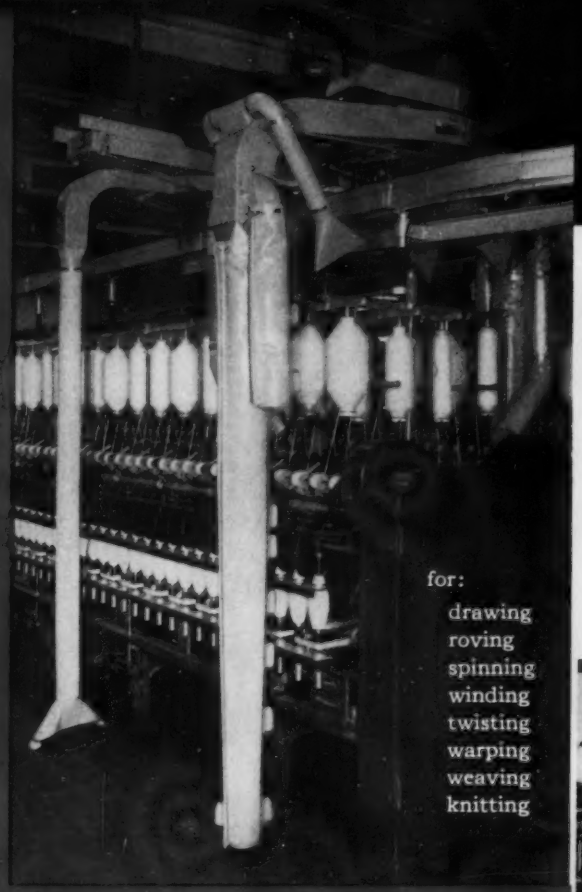

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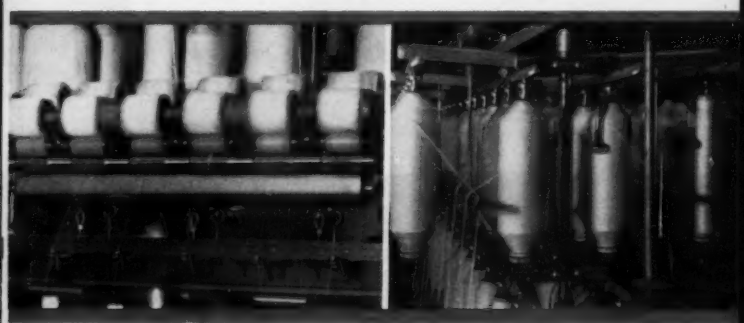

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Quality equipment
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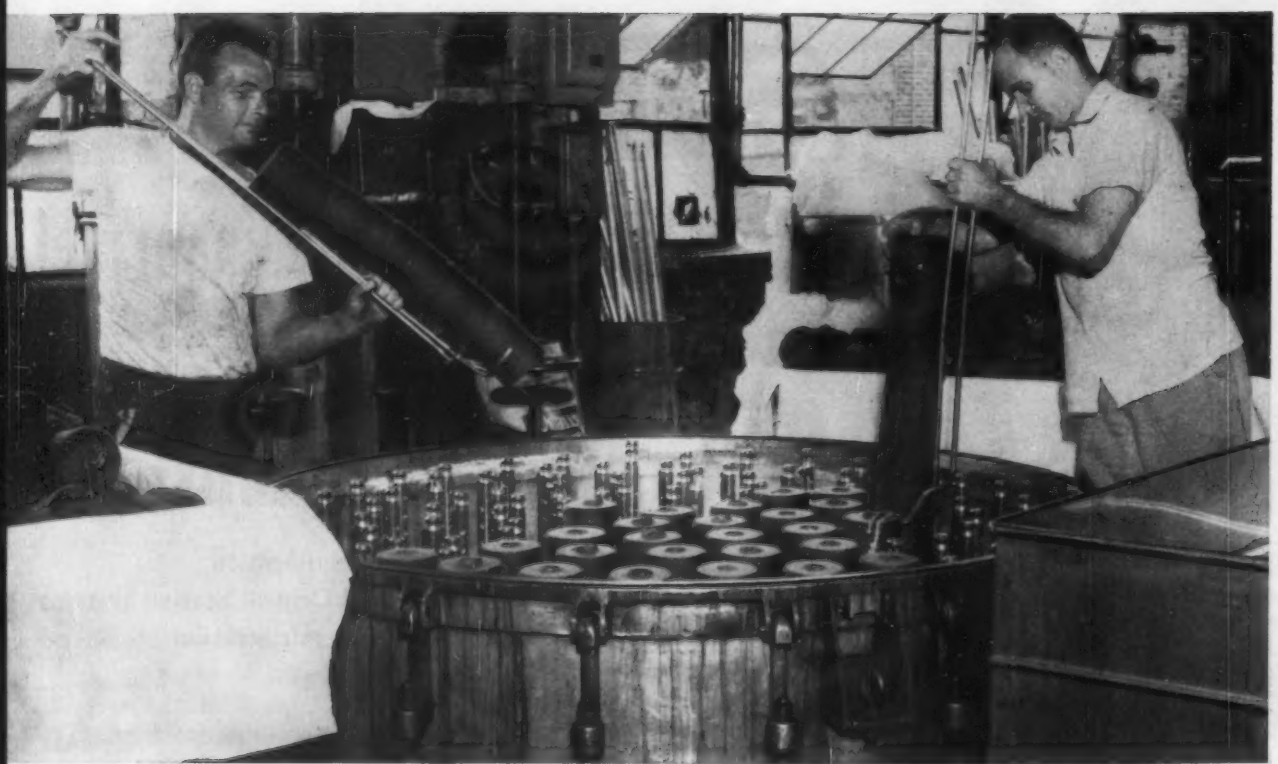
Parks-Cramer Company

FITCHBURG, MASS. CHARLOTTE, N.C. ATLANTA, GA.

Stainless Steel shows true colors in dyeing



Stainless Steel offers strong protection to this plant's dyeing process. Harsh agents don't bother the gleaming metal. High operating temperatures don't affect it. And Stainless Steel virtually never wears out, so equipment replacement costs go way down. That's why this company uses only Stainless Steel in their vats and dyeing machines.

This mark tells you a product is made of modern, dependable Steel.

The kiers and dye tanks previously used by this company chipped, peeled and corroded. Tiny flakes of corroded materials would get into the cotton yarn no matter how often the dyeing vessels were scoured. They switched to Stainless Steel and ended this corrosion problem. The Stainless Steel equipment requires practically no maintenance.

At this plant, they formerly sent their dye jobs out. But high costs and delays forced them to buy their own dyeing equipment. They chose Stainless Steel equipment. It washes sparkling clean—there's no color carry-over when batches are changed. Stainless Steel helps assure color fidelity.

Specify Stainless Steel equipment and repair parts for your plant. No other material can match the performance or product purity of USS Stainless Steel.

USS is a registered trademark

USS

United States Steel Corporation—Pittsburgh
American Steel & Wire—Cleveland
National Tube—Pittsburgh
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Tennessee Coal & Iron—Fairfield, Alabama
United States Steel Supply—Steel Service Centers
United States Steel Export Company

United States Steel

A Southern textile mill faced a problem: how to keep oil in loom bearings, where it was wanted, and off the cloth, where it wasn't. The oil being used dripped, spoiled fabrics, and cut profits.

A Sinclair engineer recommended Sinclair NO-DRIP #15, combining a light-colored base oil for lubrication with special thickening agent to resist drip and throw-off. Now, cloth spoilage has been cut to a minimum, and lubricating costs reduced by one third. Let Sinclair solve your problem, too. Call your local representative or write

Sinclair

SINCLAIR REFINING COMPANY

TECHNICAL SERVICE DIVISION • 600 FIFTH AVE., NEW YORK 20, N.Y.

Cut dyehouse reruns and seconds up to 25% by using Morton Chemical Grade '999' Salt!

Records show when dyers switch from average purity salt to high purity Morton Chemical Grade '999', reruns and seconds drop from an average of 8.7% to an average of 5.5%. Colors are truer, reruns are fewer with Chemical Grade '999'. In fact, many dye manufacturers use Morton Chemical Grade '999' Salt in standardizing their dyes before they are sent to you!

With salt of average purity, calcium and magnesium compounds complex dyes and reduce their effectiveness. But with high purity Chemical Grade '999' Salt, you get the all sodium salt—99.95% pure sodium chloride with a trace of sodium sulphate—that is recommended whenever commercial calcium free salt is required.

Available in 100-lb. bags or bulk, Chemical Grade '999' is ideal for direct salting and brine. It leaves no accumulation of insolubles that necessitates costly brine system cleanouts.

Morton offers intermediate grades of salt, too. In addition to Chemical Grade '999', Morton produces several other grades of high-purity salt for textile use. As the only nationwide salt company, Morton can supply the kind of salt and service you require, regardless of your size, location, or type of operation.

MAIL COUPON TODAY FOR MORE INFORMATION

☐ *Please send more information about Morton Chemical Grade '999' Salt.*

☐ *I would like to talk with a Morton representative about the other intermediate grades of salt Morton offers the Textile Industry.*

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Some things don't turn over fast...

Some merchandise just stays put, getting older and older. Earning no profit at all . . . Smart businessmen know how to cut the turnover risks. They know that Du Pont fiber trademarks can help goods move fast. That's because these are the best-known, most-trusted modern fibers in the world, bar none. They're miles ahead in consumer preference. (Fact: 2 to 1, men in a recent survey preferred a jacket identified as Du Pont nylon over a jacket of the same brand identified as nylon.)...And a hard-hitting, far-reaching advertising program, including "THE DU PONT SHOW WITH JUNE ALLYSON", keeps building this preference...That's why it pays to feature Du Pont fibers in your ads, on your labels and in your selling plans.

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NYLON "ORLON"®* "DACRON"®
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...GIVE YOU A SELLING EDGE!

DU PONT REG. U.S. PAT. OFF. BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

*Du Pont's registered trademark for its acrylic fiber. **Du Pont's registered trademark for its polyester fiber.

Enjoy THE DU PONT SHOW WITH JUNE ALLYSON, Thurs. nights on CBS-TV.

UNIFORMITY

of Blended Fiber Stocks Is Important

THE PROCTOR FIBER BLENDING FEED

accurately weighs and proportions baled stocks. It's automatic. It saves labor. It reduces cost. It improves uniformity of product.

Two or more of these feeds combined with a floor apron, picker and condenser make a complete, simple and effective blending unit. Each feed has its own self-contained control units and is completely enclosed. No extra controls to buy. Each accurately weighs up to 10 dumps per minute. Each can be operated manually or automatically.

The Proctor Blending Feed assures better opening of fibers by the self-stripping rotary pin beaters on the hopper side and on the delivery side of the spike apron.

The Proctor Fiber Blending Feed is one of 3 new high-production feeds: #729B Blending Feed, #729C Card or Garnett Feed, #729P Picker Feed.

Bulletin #459 completely describes the new Proctor Blending Feed. Send for your copy. There is no obligation.

Be sure to see the Blending Feed in action at the Southern Textile Exposition, Booth 503.

PROCTOR & SCHWARTZ, INC., 7th Street & Tabor Road, Philadelphia 20, Pa.

gdc dyes for synthetics...ready reference dye application chart

developed to fulfill individual fiber requirements

DYE	TYPE	FIBERS†																
		Acetate	Acrilan[1]	Acrilan 16[1]	Arnel[2]	Corval[3]	Creslan[4]	Dacron 54[3]	Dacron 64[3]	Darvan[2]	Dynel[6]	Kodel[7]	Nylon	Orlon[5]	Topel[8]	Verel[7]	Vycron[8]	Zefran[9]
Acid Alizarine Anthralan® Genalan® Sulphon® Supramine® Supranol®	ACID		■				■			■	■		■	■				■
Palatine®	ACID METALIZED		■				■			■			■					
Naphthol Fast Color Bases	AZOIC	■	■		■	■		■	■	■		■	■		■		■	■
Genacryl®	CATIONIC (Basic)		■	■			■		■	■	■			■		■		
Benzofix® Fastusol®	DIRECT					■							■		■			■
Diaminogen® Diazo Oxydiaminogen® Zambesi®	DIRECT, DEVELOPED					■						■			■			■
Celliton® Genacron®	DISPERSE	■	■	■	■		■	■	■	■	■	■	■	■		■	■	
Cellitazol®	DISPERSE, DEVELOPED	■	■		■		■	■	■	■	■	■	■	■			■	
Anthracene Chrome Chromogene® Chromoxane®	MORDANT ACID (Chrome)		■				■			■			■					
Supralan®	NEUTRAL METALIZED		■				■				■		■			■		■
Indo Carbon® Katigen®	SULFUR					■									■			■
Algol® Indanthrene®	VAT					■		■							■			■
Algosol®	VAT ESTER (Soluble)		■			■		■							■			■

To help you keep abreast of new dyeing procedures, we have just completed a new 90-page booklet, "The Dyeing of Synthetic Fibers." For your copy, write direct or call the GDC Service Representative nearest you.

†Company Trademarks: (1) Chemstrand Corporation; (2) Celanese Corporation of America; (3) Courtaulds (Alabama), Inc.; (4) American Cyanamid Co.; (5) E. I. du Pont de Nemours & Co.; (6) Union Carbide Chemicals Co., Div., Union Carbide Corporation; (7) Eastman Chemical Products, Inc.; (8) Beaunit Mills, Inc.; (9) Dow Chemical Co.

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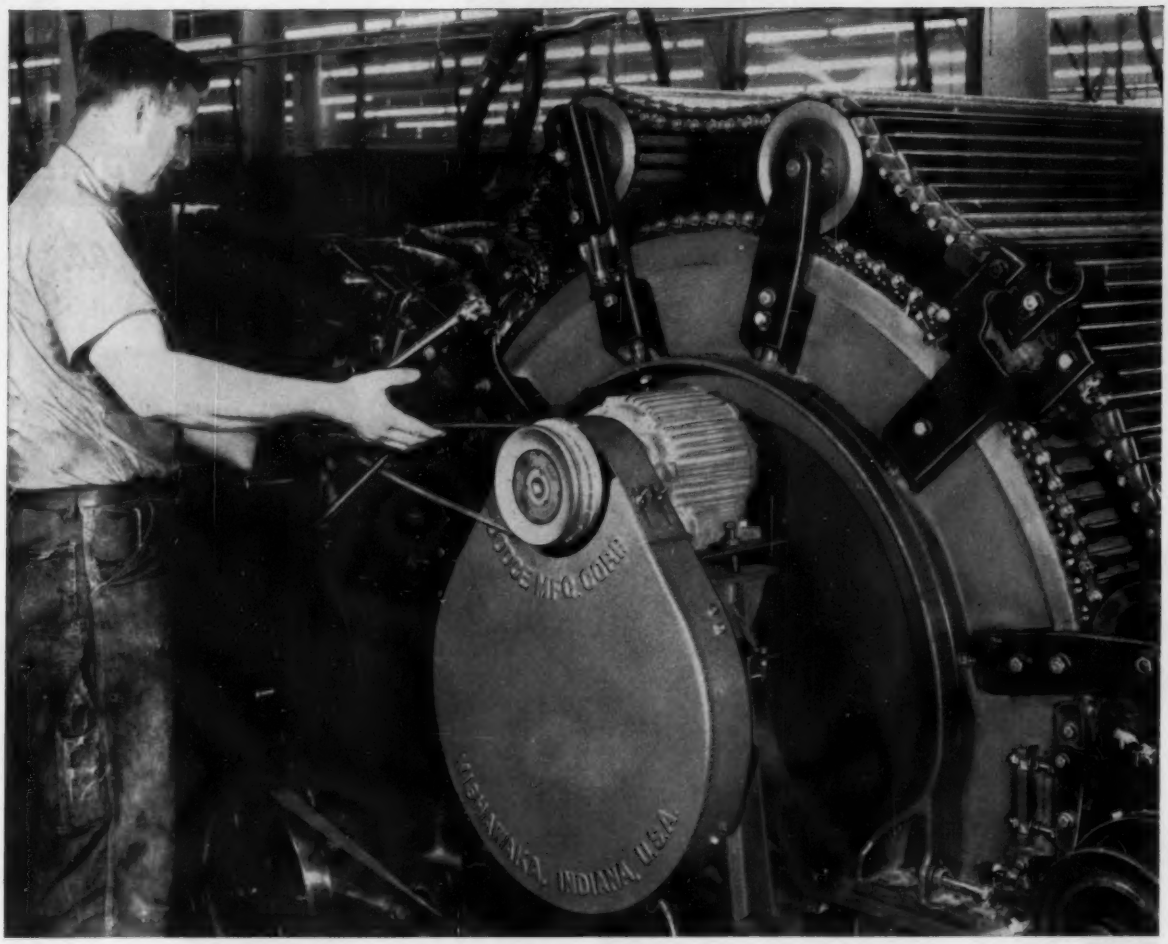

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...AVOIDS EXCESSIVE STRAIN

Flexidyne, heart of this new complete Card Drive by Dodge, picks up the load smoothly... protects machinery and motor against shock and overload . . . delivers 100% efficiency during running cycle. Flexidyne, *the Dry Fluid Drive*, eliminates need for high torque motors and expensive controls, saves power, provides a new and better way to drive textile machines.

Note the special aluminum pulley mounted on Flexidyne housing, enabling quick, convenient operation of stripper. Pedestal has adjustable motor base to control tension on V-belts. You should have the full story of all the advantages of the new Dodge Flexidyne Card Drive. Ask your local Dodge Distributor, or write us, for new illustrated Bulletin A-653.

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NEW! FLEXIDYNE CARD DRIVE

A complete package, ready to install.

- Flexidyne, keyed to motor shaft
- Pedestal, supporting motor
- V-flat drive
- Aluminum stripper pulley
- Aluminum guard

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CALL THE TRANSMISSIONEER—your local Dodge Distributor. Factory trained by Dodge, he can give you valuable help on new, cost-saving methods. Look under "Dodge Transmissioneer" in the *white* pages of your telephone directory, or in the yellow pages under "Power Transmission Equipment."

Eliminate unnecessary snowstorms, end lapped rolls and aprons, increase frame assignments per operator, enlarge output and improve quality, reduce waste and frame maintenance and drastically cut costs in roving production—with Adamstop!

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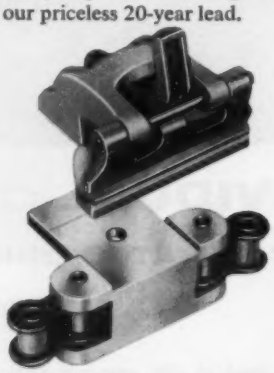
Our #11 Roller Type Tenter Clip universally sets the standards for roller clip performance. Engineered for every type of operation, equipment and fabric, it is precise in performance up to 250 ypm, has exceptionally long life at high speeds. We originated, patented and introduced the basic design 20 years ago — and constantly improve both design and materials to maintain our priceless 20-year lead.



Our Two-Piece Roller Type Tenter Clip is a typical M&W innovation — only clip of its type available in two-piece construction to eliminate down time, greatly reduce repair costs. A single socket-head cap screw and lock washer rigidly hold the two sections together. Top section can be promptly removed (and replaced)

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Heavy duck or filmy scrim –range handles both with equal ease!

Louis Allis Ajusto-Spede® Drives control speed and tension— cut set-up time—drive ranges on two floors individually or as one!

Here's range-drive engineering that can revolutionize *your* cloth processing! This unique set-up for finishing bag cloth typifies the efficiency and flexibility that Louis Allis engineering and products provide for new mills — or for putting existing ones on a sound paying basis.

This remarkable range handles every type of cloth — from very heavy enameling duck down to filmy scrim — at speeds from 35 to 200 yards per minute. The Ajusto-Spede drives, like the 40-hp unit shown, furnish the right speed and tension for every step of the process.

Drives respond quickly, positively — change speeds softly and gradually. This precise control assures that every foot of cloth is uniformly wide — that it gets the exact amount of starch or filler — that it is properly dried, finished, and wound. The result: Faster processing, fewer breaks, and negligible waste.

The flexibility of operation is equally amazing. The installation consists of a two-motor range on the first floor and a three-motor range on the second floor. Each range can be run separately — or they can be combined into a single five-motor range with the flip of a switch. Changing from heavy to light cloth requires little set-up time. Commutation upkeep has been eliminated.

For modernizing — or a new installation — consult Louis Allis *first!* You'll get the best in products and engineering from a proven and respected source. Contact your Louis Allis District Office, or write The Louis Allis Co., 468 East Stewart Street, Milwaukee 1, Wisconsin.

LOUIS ALLIS

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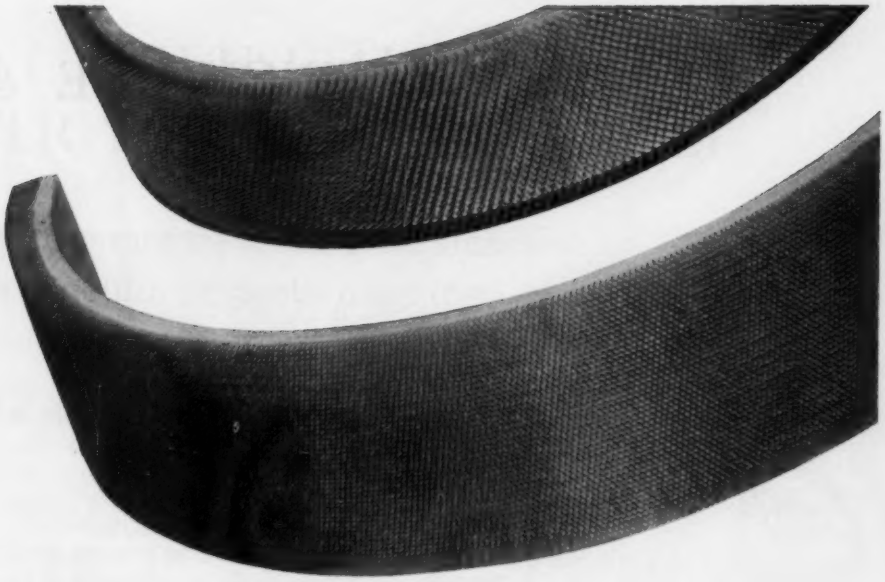
MANUFACTURER OF ELECTRIC MOTORS AND ADJUSTABLE SPEED DRIVES



Regardless of Wire Size or Type of Foundation there is only Top Quality

Tuffer TRADE MARK

For you, that means better carding at lower cost.

A boss carder in a large mill writes, "We save on grinding costs because Tuffer is so accurately ground we can put it on the cylinders as it comes to us."

Precision grinding is but one feature. In all Tuffer clothing, the wires are exactly positioned for uniform height, pitch and angle of every tooth. And the patented Tuffer foundation cushions the wires to shock, while holding them firmly yet flexibly in place.

In standard sizes or in specially engineered clothing, the "Tufferizing" Process guarantees consistent quality.

TUFFER PRODUCTS

- Card Clothing for Woolen, Worsted, Cotton, Asbestos and Man-made Fibers
- Napper Clothing and Brushes
- Top Flats re-covered and extra sets loaned at all Plants
- Lickerins rewired at Southern Plants
- Hand Stripping Cards

HOWARD BROS.

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Southern Plants: Atlanta, Ga., Gastonia, N. C., Greenville, S. C.

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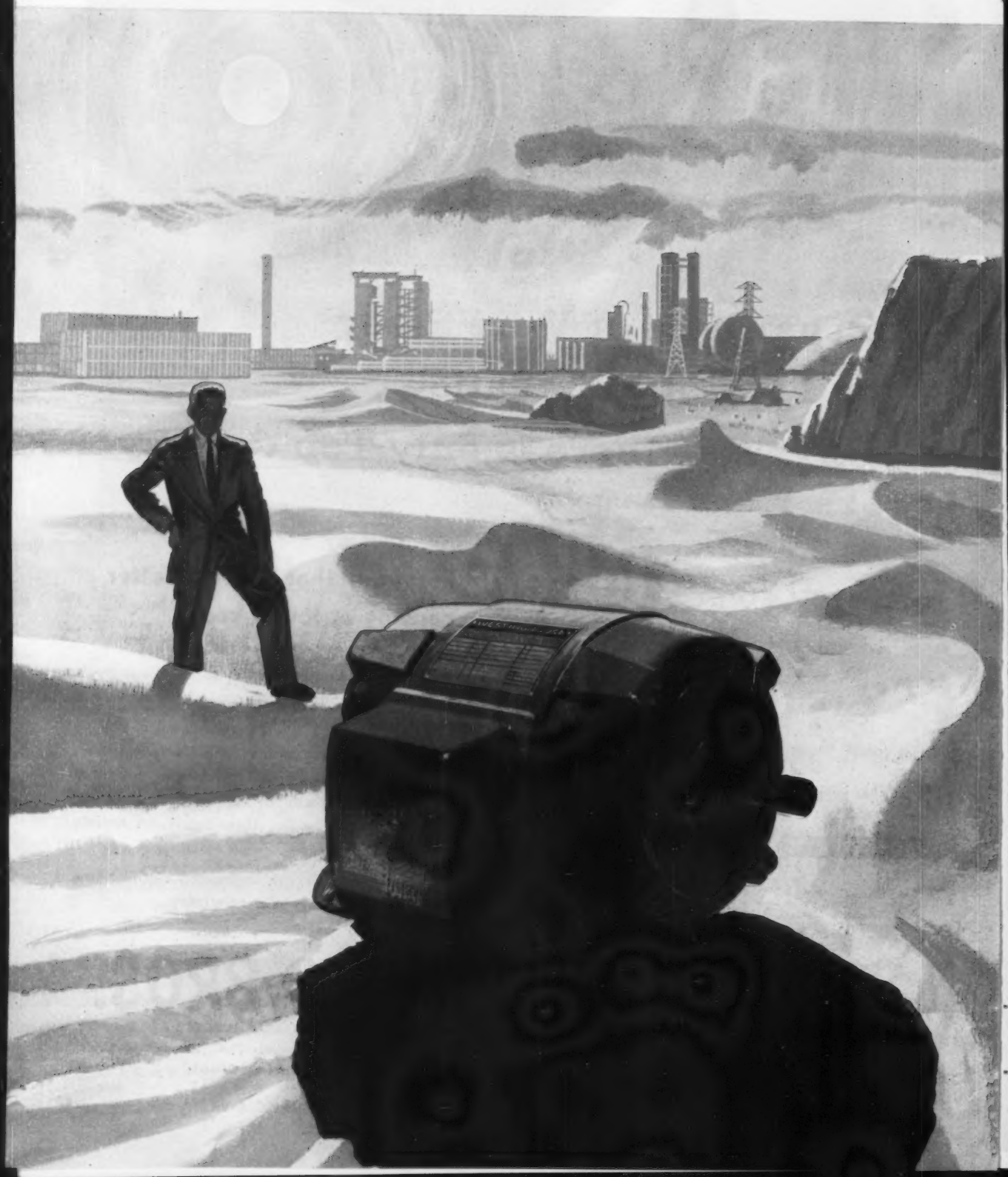
NEW WESTINGHOUSE *Guardistor*



MOTORS LET YOU USE ALL THE HORSEPOWER YOU PAY FOR...SAFELY

The man and the motors from Westinghouse now provide absolute protection against motor failure caused by excessive heat . . .

Our Engineering Manager says:
"With the breakthrough development of the Westinghouse Positive Temperature Coefficient thermistors, for the first time we can provide inherent protection against motor failure caused by excessive heat. The solid-state thermistors buried in the windings instantly sense excessive heat from any cause and simultaneously warn of trouble or automatically take the motor off the line. Thus, motor protection is placed where only true motor protection can be . . . in the windings."

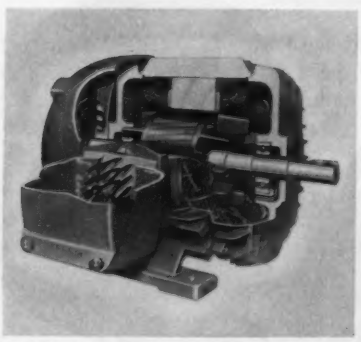
Our Marketing Manager says:

- "You can match the motor to the load . . . use all the motor you are paying for.
- Provides positive protection based on winding temperature . . . *not* load current and/or power supply fluctuations.
- Eliminates time and expense of changing winter-summer heaters. No nuisance tripping, it's fail-safe . . ."

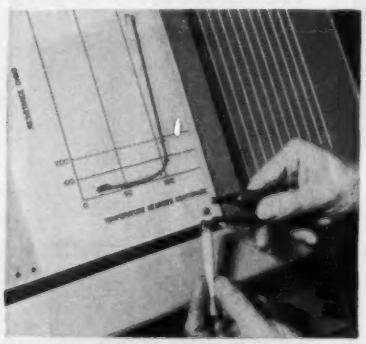
Call your Mr. Westinghouse for the application of a Guardistor* motor to your drive requirements . . . write for *Questions and Answers About . . . Guardistor* (B-7876). Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. You can be sure . . . if it's Westinghouse.

*Trade-Mark

J-22160-R



Unlike remotely located sensing devices, PTC thermistors are buried in the windings of the Guardistor motor, instantly equating all temperature factors.



Ever alert PTC thermistors constantly totalize temperature, statically triggering an action *only* if critical temperature is reached.

MOTOR & GEARING DEPARTMENT

Westinghouse

You Can Rely on the Air Handling Products He Sells . . . for effective, efficient and economical service because they are correctly designed and made of quality materials.

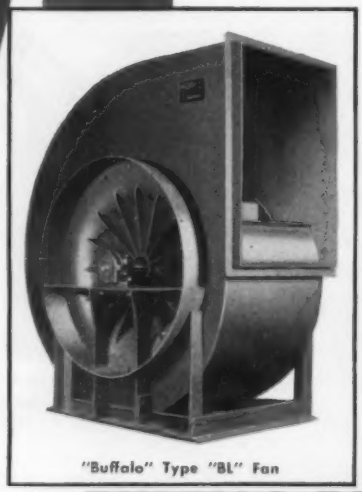
You Can Rely on the Services He Offers . . . because he is a specially trained engineer backed by over 83 years of fan engineering and production experience.

Note the quality features built into the two "Buffalo" Fans on this page. This is the kind of superior construction that insures complete reliability.

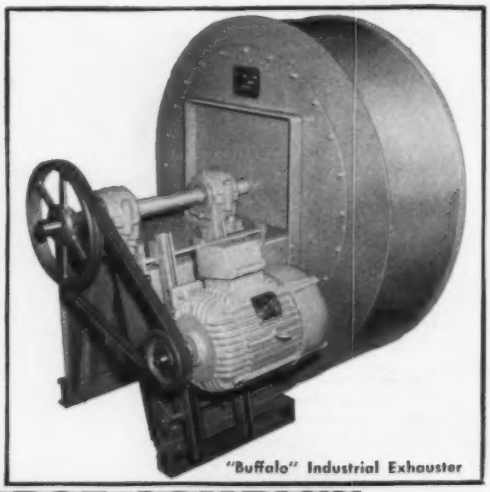
"Buffalo" Industrial Exhausters — the rugged construction of these efficient air and materials handling fans includes heavy steel plate housing, welded throughout. These units are widely used in steel mills, cement plants and similar severe applications. Models are available for moving hot gases from 200°F. to 850°F. In corrosive fume installations, "Buffalo" Rubber-Lined Exhausters outlast metal fans up to twelve to one. These units may be ordered with material wheels for efficiently moving abrasive dust, saw dust, chips, long shavings and a variety of other "problem" materials. For complete facts, write for Bulletin FI-110.

"Buffalo" Type "BL" Fans — These durable fans are designed for peak performance in all Class I and II air moving jobs. Ideal for ventilating, air conditioning and air cleaning systems. The heavy gauge housings are of all-welded construction. Structural steel bracing provides stiffness and rigid bearing support. Hot-rolled or forged shafts are precision made for perfect wheel and bearing fit. Husky backward-curved blades are welded to solid shroud and back-plate. Self-aligning anti-friction bearings assure continuous dependable operation at maximum tip speed. Write for Bulletin F-104.

Whatever your air handling needs, call in "The Man From Buffalo". . . your nearby "Buffalo" Engineering Representative. He'll help you be sure you have the right fan for the job. And when it's a "Buffalo" Fan, you can depend on its reliability.



"Buffalo" Type "BL" Fan



"Buffalo" Industrial Exhauster

"Buffalo"

BUFFALO FORGE COMPANY

Buffalo, New York

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

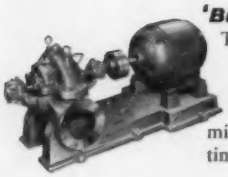
'Buffalo' Air Handling Equipment to move, heat, cool, dehumidify and clean air and other gases.

'Buffalo' Machine Tools to drill, punch, shear, bend, slit, notch and cope for production or plant maintenance.

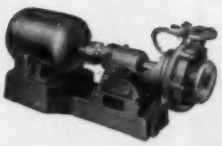
'Buffalo' Centrifugal Pumps to handle most liquids and slurries under a variety of conditions.

Squier Machinery to process sugar cane, coffee and rice. Special processing machinery for chemicals.

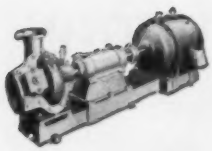
BUILT FOR THE JOB ...TO SAVE YOU MONEY



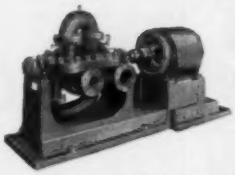
'Buffalo' Clear Water Pumps. These Double Suction Pumps are designed for maximum efficiency in clear water service. Ruggedly built for long, trouble-free life with minimum down-time. Write for Bulletin 955.



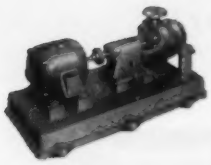
'Buffalo' Chemical Liquid Pumps. These sturdy pumps are specially engineered for punishing service in moving most corrosive, abrasive or high consistency liquids. Your choice of several types in a wide variety of trim. Send for Bulletin 976.



Non-Clogging Pumps. Move high consistency liquids efficiently and dependably. Wear and wedging are minimized. Diagonally split shell simplifies inspection. Rubber-lined units are ideal for corrosive or abrasive liquids. Full details in Bulletin 953.



High Pressure Pumps. These multi-stage pumps stand up under boiler feed and other severe clear water conditions. Designed to operate against heads as high as 1500 ft., in capacities to 900 gpm. Bulletin 980 gives complete facts.



Heat Transfer Pumps. Specially engineered to handle high temperature liquids. Huskily built with special alloys, water-cooled bearings and suitable packings. Highly efficient single suction, solid shell design. Write for complete details.

Close-Coupled Pumps. These space-saving 'Buffalo' Pumps combine high efficiency with great compactness. Since no shaft alignment is required, installation is simplified. Models for vertical or horizontal installation. Discharge is adjustable to required angle. Send for Bulletin 975.

Here's Why 'Buffalo' Pumps' *Quality* Is Your Best Economy... Resulting In *Lower Overall Cost:*

- The complete 'Buffalo' Quality Line offers the right pump for almost every liquid-moving need. Thus you pay only for the type, size and capacity required . . . no more. This can save you money from the start.

- Maximum Parts Interchangeability through standardization of parts cuts inventory costs and stocks. This, plus simplified inventory control, provides additional economies.

- 'Buffalo' Stresses Quality through and through, to insure many years of productive pump life. This is true long range economy. Rugged construction provides extended trouble-free operation. Result? Less down-time adds further economies.

- Maximum Hydraulic Efficiency is engineered into every 'Buffalo' Pump. This means more liquid moved for each unit of power. Still more economies!

Any way you look at it, 'Buffalo' Quality Pumps insure greater economy for you. Your 'Buffalo' representative will be glad to help solve your liquid moving problems. Phone him today, or write us direct.

"Buffalo" PUMPS

BUFFALO PUMPS DIVISION

BUFFALO FORGE COMPANY

Buffalo, New York

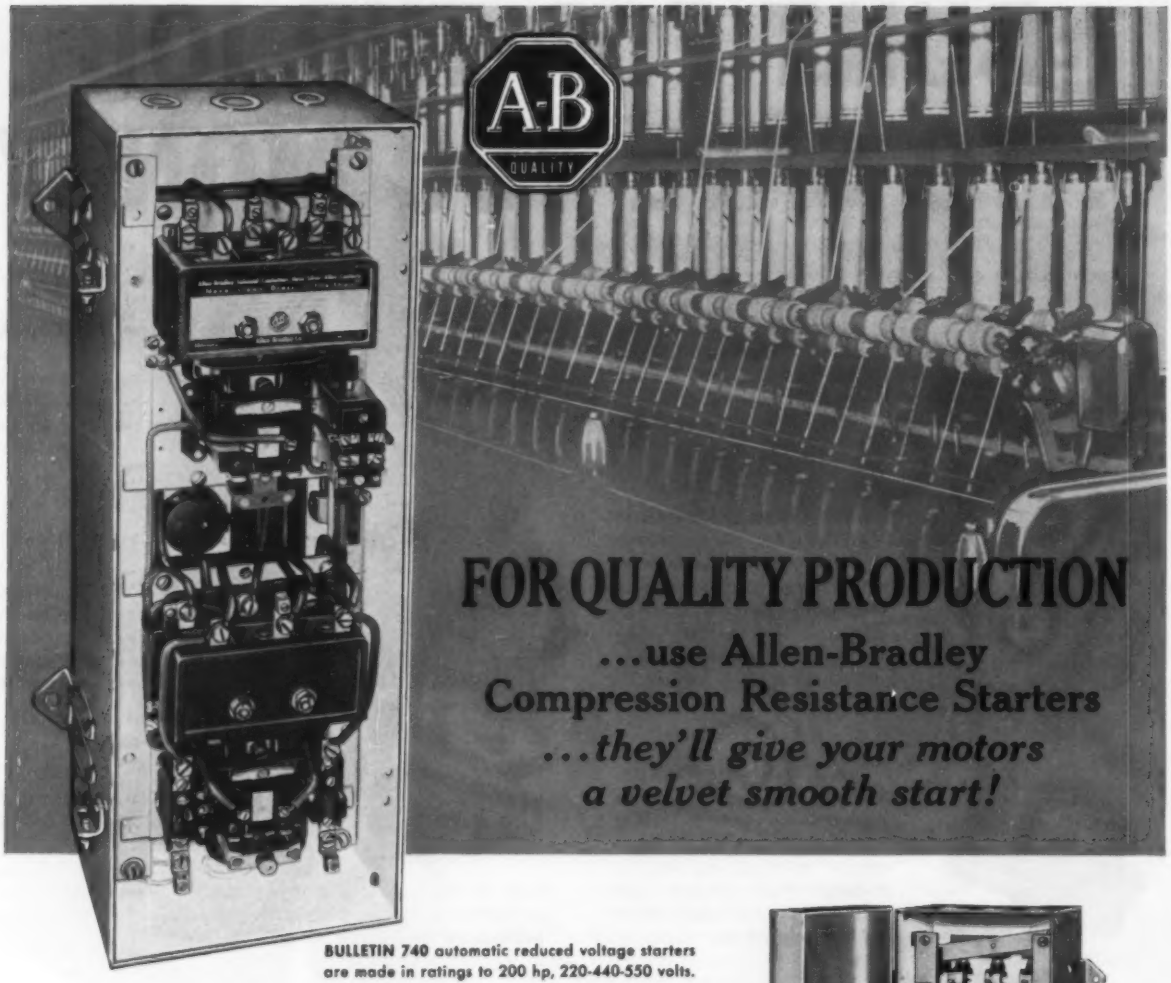
Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

'Buffalo' Air Handling Equipment to move, heat, cool, dehumidify and clean air and other gases.

'Buffalo' Machine Tools to drill, punch, shear, bend, slit, notch and cope for production or plant maintenance.

'Buffalo' Centrifugal Pumps to handle most liquids and slurries under a variety of conditions.

Squier Machinery to process sugar cane, coffee and rice. Special processing machinery for chemicals.



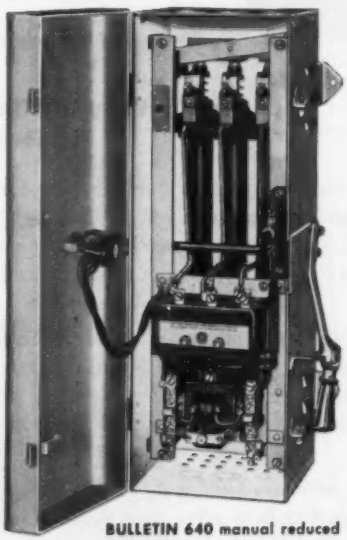
BULLETIN 740 automatic reduced voltage starters are made in ratings to 200 hp, 220-440-550 volts.

For starting machines handling delicate yarns or fibers, there's absolutely nothing on the market that can equal the velvet smooth acceleration provided by Allen-Bradley graphite disc resistance starters.

The A-B Bulletin 740 starter above has preset graphite disc resistors which are automatically inserted in series with the motor during acceleration, and they are cut out after a predetermined starting period. Both the resistors and the starting interval can be adjusted for velvet smooth acceleration.

When remote control is not needed, select the A-B Bulletin 640 manual starter. Here the graphite disc resistors change in resistance gradually as the pressure on them is varied, providing stepless acceleration. Operated by hand lever, the smooth starting is under control of the operator. No-voltage and dependable overload protection are provided. Please send for details on the complete line of Allen-Bradley reduced voltage starters.

Allen-Bradley Co., 208 W. Greenfield Ave., Milwaukee 4, Wis.
In Canada: Allen-Bradley Canada Ltd., Galt, Ont.



BULLETIN 640 manual reduced voltage starters made in ratings to 200 hp, 220-440-550 volts.

ALLEN-BRADLEY
Member of NEMA

QUALITY MOTOR CONTROL

". . . you don't have to get so up-in-the-air when I make a mistake . . ."

When a wet-processing technical problem is about to get you up-in-the-air, don't let it.

Send the problem to us; we're specialists in worrying about the problems of our customers.

Better still, call us on our direct Customer Service Phone (TRinity 6-1797), and we'll start worrying for you immediately.

Warp Sizing: *Softeners, Binders, Penetrants, Ty-In Penetrants, Shuttle Dressing, Waxes.*

Wet Processing Chemicals and Auxiliaries: *Dye Assistants, Penetrants, Rewetting Agents, Sanforized Fabric Oils, Detergents, Scouring Agents, Softeners.*

Niagara Twist-Setter: *Yarn Conditioning Penetrants.*

Seyco Warp Lubricator.

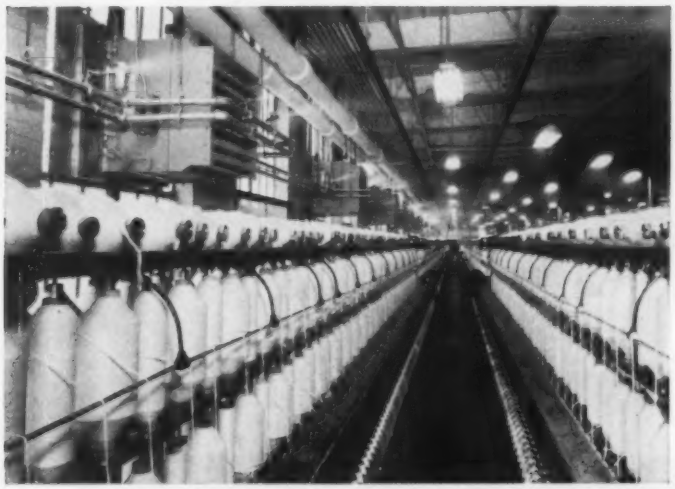
Headquarters for textile chemicals

SEYDEL-WOOLLEY & CO.

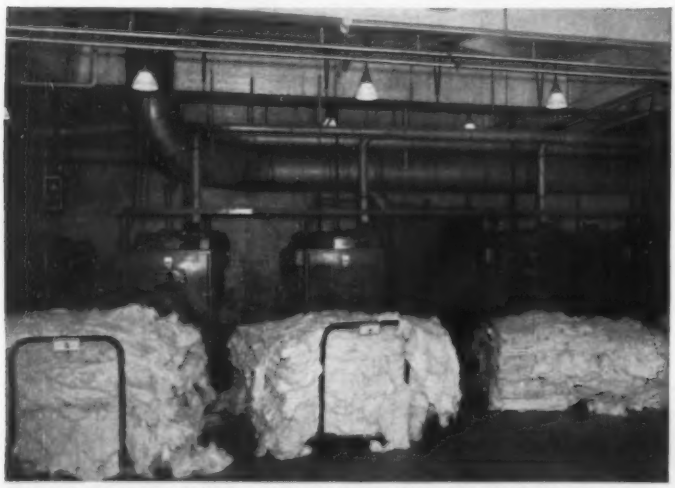
748 RICE STREET, ATLANTA, GEORGIA

SEYCO

Amco Central Station Air Conditioning, using cold water for cooling in warm weather, maintains the proper humidity and temperature conditions year 'round in the above spinning room.



Amco ductless system of humidification, cooling and ventilating installed in a spinning room. Window units and Amco #6 atomizers visible at left, supply properly conditioned air.



Where straight humidification is desired. Amco #6 atomizers — operated with sensitive Amco humidity controls — provide just the right degree of relative humidity for blending, opening and picking operations.

Look to Amco for help in solving any air conditioning problem you may have

Most mill owners face a variety of air conditioning problems. All areas of the three mills illustrated here, for example, required different and distinct types of air conditioning. Amco helped solve these needs by the installation of the proper Amco system, suited to the individual requirements. The results have been better quality, greater worker comfort, and improved efficiency.

Do you have an air treatment problem in your mill? Choose from these systems, used by leading mills, to provide central station air conditioning in one area, humidification alone in another, or a unit ductless evaporative cooling system in still another. Amco, of course, also installs unit dry duct systems.

Whatever your needs, remember . . . you can depend on Amco to give you reliable advice and an expert installation of the system best suited to your particular case.

AMCO

SINCE 1888

AIR CONDITIONING EQUIPMENT

American Moistening Company • Cleveland, North Carolina

Branches: Atlanta, Ga. • Providence, R. I.

Toronto, Canada

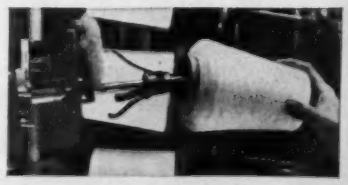
A KIDDE CREEL can handle any package...

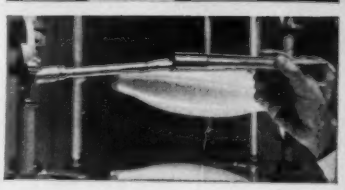
present-day or future development!

Talk about versatility! Kidde creels are designed to handle any package—any size, any shape—simply by using adapters like those in the pictures at right. Clamp type construction makes it easy to change vertical or horizontal spacing to accommodate different sizes and shapes. And Kidde will design holders and adapters for present creels to take any future packages developed!

Kidde works with you to build the creel your operation requires—horizontal or vertical, magazine or non-magazine—any size from 40 to 4,000 running ends. And Kidde tension devices can handle the entire range of yarns—natural or synthetic, filament or spun.

Why not send for our booklet describing all the advantages of Kidde creels. Just write or phone.





See Kidde Machines in action at the Greenville Show — Booth 478

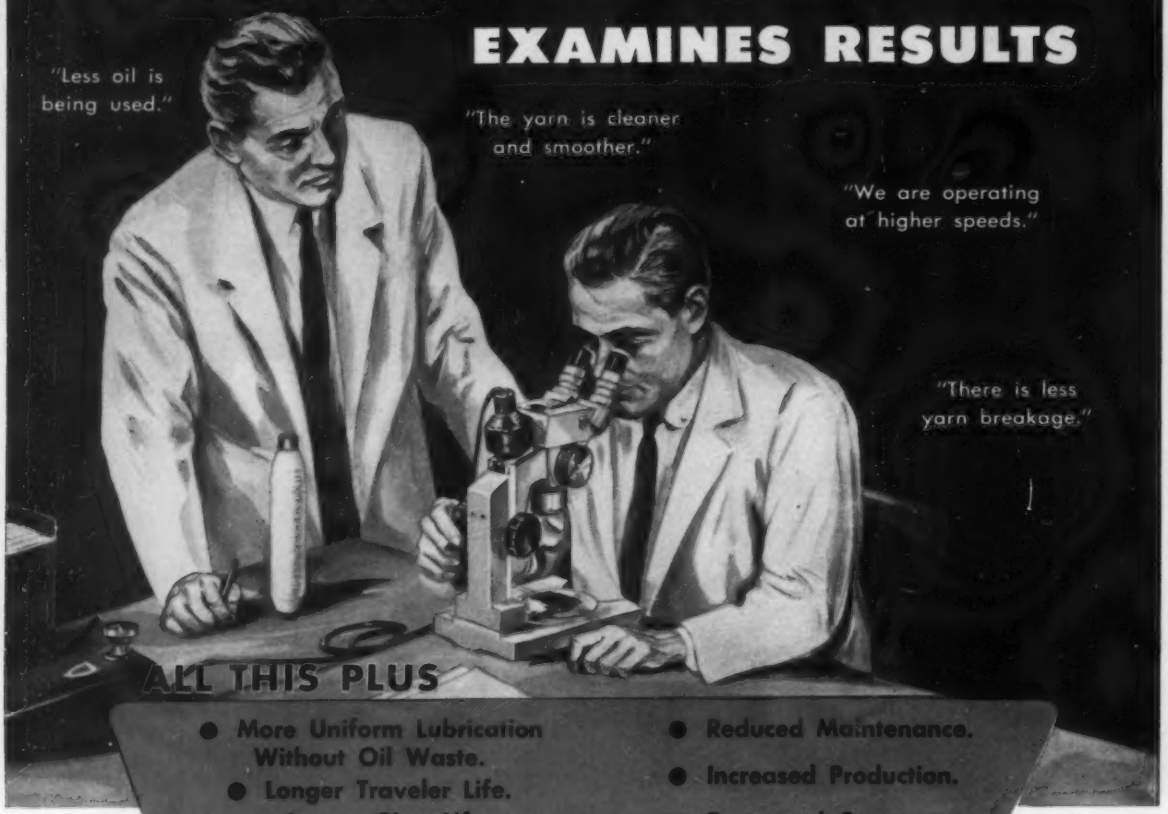
TRICOT AND RASCHEL MACHINES • TRICOT WARPERS • HORIZONTAL WARPERS • BEAMERS
CREELS • SLASHERS • WINDER-REDRAWS • TENSOMETERS • TENSION COMPENSATORS

Kidde

TEXTILE MACHINERY CORPORATION — BLOOMFIELD, NEW JERSEY

The word KIDDE is the trademark of Walter Kidde & Company, Inc., and its affiliated companies.

A USER OF THE NEW "M" TYPE HERR CONICAL RING EXAMINES RESULTS



ALL THIS PLUS

- More Uniform Lubrication Without Oil Waste.
- Longer Traveler Life.
- Longer Ring Life.
- Reduced Maintenance.
- Increased Production.
- Decreased Costs.

Now, "M" Type Herr Conical Rings introduce a new method of lubrication called Seam Lubrication. By the principle of capillary attraction oil finds its way from the reservoir through the top and side seams to the wearing surfaces. The minute seams, so fine that they are hardly visible, control the amount of flow so that every drop of oil is utilized. There is no waste—no oil surplus to contaminate the yarn. The operation is clean. There is no rewicking. Maintenance costs are lowered. Oil consumption is greatly reduced, yet faster spindle speeds are possible without extra wear to ring or traveler.

The "M" type Herr Ring has been thoroughly tested for several years in some of the largest textile plants.

Write today. Let us give you all the facts that lead to greater profits for you.

Oil is Supplied to Both Top and Conical Bearing Surfaces Through Seams.

Oil Flows to Annular Reservoir Within the Ring, Then is Drawn by Capillary Action Through Seams.

The 5" diameter 43/64" face Herr "M" Type Ring has only one oil cup. Herr travelers are specially designed to provide best results with this ring.

HERR MANUFACTURING CO., INC.

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FOR SPINNING AND TWISTING WORSTED, WOOLEN, RAYON, NYLON, ORLON, FIBERGLASS AND BLENDED YARNS OF ALL TYPES

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TIMED OR CURRENT LIMIT
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Or Both

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GENERAL ELECTRIC *Adjustable-Speed Drives Offer* *A Great Opportunity*

POLYDYNE® DRIVE

Modern, a-c mechanical drive. ¼–25-hp. Speed range to 10:1. New "Equalizer"‡ provides smooth manual or automatic speed control. Produced by Gear Motor & Transmission Components Dept., Paterson, N. J. Write for Bulletin GEA-6806*.

‡ Pat. Pending.

THYMOTROL† *SPEED VARIATOR*

High quality electronic drive. ¼–10-hp. Wide speed range. Small, lightweight. General Purpose and High Performance types. Write for Bulletin GEA-7018 and GEA-7019*.

KINAMATIC® *Speed Variator*

Industry's most versatile electric drive. 1–500-hp. Features Kinamatic motor-generator conversion. Speed range up to 200:1. Precise regulation. Regeneration. Wide variety of power unit, motor and control modifications available. Write for Bulletin GEA-6643*.

Industry's most complete line of modern packaged drives for every performance level, every price range

General Electric adjustable-speed drives are available for every performance level, every price range to help you boost output, improve quality, increase machine flexibility, reduce installation costs, cut your maintenance budget, add substantial profits to your business.

To make possible these advantages, your General Electric sales engineer is backed by an experienced team of adjustable-speed drive specialists—men who work constantly to help you get more out of your machines.

They offer an unbiased, analytical evaluation of your requirements—recommend the adjustable-speed drive that meets the demands of your application most completely and economically.

GENERAL ELECTRIC

to Modernize for Increased Profits

KINATROL✣ SPEED VARIATOR

Outstanding packaged drive value. Compact, versatile eddy current coupling. 3–100-hp. Stepless speeds 1½:1 to 17:1. 2% speed regulation. For complete information write for Bulletin GEA-6885*.

Parmatic SPEED VARIATOR

Power amplistat conversion features hermetically sealed silicon rectifiers. 1–200-hp. Speed ranges to 200:1. Lightweight, quiet and vibrationless. Field proven. Write for Bulletin GEA-7012*.

** Write to Section 821-4, General Electric Company, Schenectady 5, New York.*

In Canada, write Canadian General Electric, Peterborough, Ontario.

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RESEARCH

In product research, G.E. invests more than three times the industry average. You benefit from the most modern features in your G-E drive.

ENGINEERING

General Electric industry and application specialists, familiar with your production process, assure proper selection and design of G-E adjustable-speed drives to meet your specific application requirements.

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Skilled G-E workers, modern production facilities, standardized components and latest testing methods combine to give you high-quality, adjustable-speed drive equipment, shorter delivery time, lower prices.

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G.E.'s service network offers three-way 'round-the-clock' assistance: start-up service, productive maintenance assistance and complete repair service.

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Industry's most preferred d-c mill motor. 500 to 625-hp. Write for Bulletin GEA-4654C*.

KINAMATIC® D-C MOTORS

Most modern, versatile d-c motor for adjustable speed. 1 to 200-hp. Write for Bulletin GEA-6335*.

AMPLIDYNE POWER AMPLIFIERS

Fast response d-c power source with flexible output characteristics. Write for Bulletin GEA-4053B*.

PLUS . . . *industry's most complete line of drive components for both general purpose and special industry application*

To learn more about the modern capabilities of G-E packaged drives and components, call your nearby General Electric sales engineer. ADJUSTABLE SPEED, a new booklet which outlines G.E.'s complete line of modern packaged adjustable-speed drives, is also available to help you modernize for profits. Ask for Bulletin GEA-6999*.

Write to Section 821-4, General Electric Co., Schenectady 5, N. Y. In Canada, write Canadian General Electric, Peterborough, Ontario.

DIRECT CURRENT MOTOR & GENERATOR DEPARTMENT

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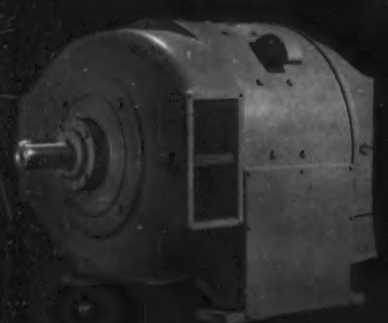
HEAVY DUTY M-G SETS

Reliable power conversion for main, auxiliary and process line drives.

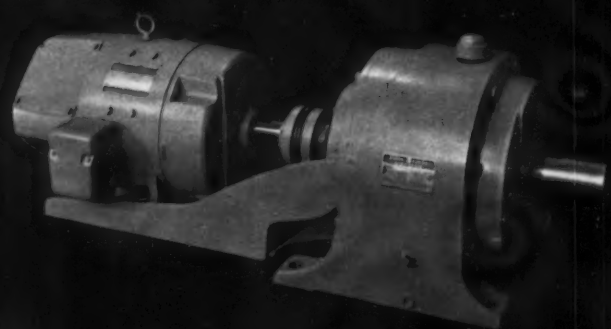
CD-1000 D-C MOTORS

Performance proved. Quality designed. 250 to 1250-hp. Write for Bulletin GEA-5497A*.



ALL-MOTOR GEAR-MOTOR

A-c or d-c, 1 to 75-hp. Simplified maintenance. Produced by Gear Motor & Transmission Components Dept. Write for Bulletin GEA-6704*.



NEWS IN BRIEF

When It Rains, It's Cotton. Cotton continues to strengthen its position as the dominant fiber in the rainwear industry, which is fast approaching the $100-million-a-year level in manufacturers' sales. Cotton now accounts for about 60 per cent of all piece

goods purchased by rainwear manunfacturers, according to Robert S. Norman, assistant vice-president of Commercial Factors Corp.; it was less than 15 per cent nine years ago. Usage of rayon-acetate, which once held the same spot, has declined proportionately.

Tans Skin, Stains Rugs. A product recently introduced to the market which will turn the skin a brownish color without the aid of the sun or an infrared lamp, will likewise have the same effect on

rugs and carpets, according to technicians of the National Institute of Rug Cleaning. Such products as "Magic Tan," "Man Tan," and "Positan" are colorless solutions, but if they are spilled on a rug a brownish stain will start to develop in about six hours (or longer, depending on the fiber).

Gin Sampling Spreads. During the past five years, mechanical devices for sampling cotton bales during ginning have been installed in about 153 U. S. gins—over 90 per cent of them in Texas and California—according to a survey by the U. S. Department of Agriculture. About two-thirds of the samplers were installed in 1959, and nearly three-fourths of the total are in large-volume gins owned cooperatively by farmers.

Polyester-Wool Blend Best—QM. A polyester-wool blend was the most satisfactory of nine

Labor-Management News

TWUA Backs Jack. A policy statement by the executive council of Textile Workers Union of America pledges the union's support to John H. Kennedy, Democratic presidential nominee.

Unions Rebuffed. Employees at the Blue Mountain, Ala., plant of Linen Thread Co., recently rejected Textile Workers Union of America as their bargaining agent by a vote of 603-310, in an election conducted by the National Labor Relations Board. * * * TWUA also met defeat at York Narrow Fabrics Co., York, Pa., when employees voted 76-53 against the union in an NLRB-supervised election. * * * Workers

at West Boylston Mfg. Co., Montgomery, Ala., recently turned down United Textile Workers of America as their representative, 233-76.

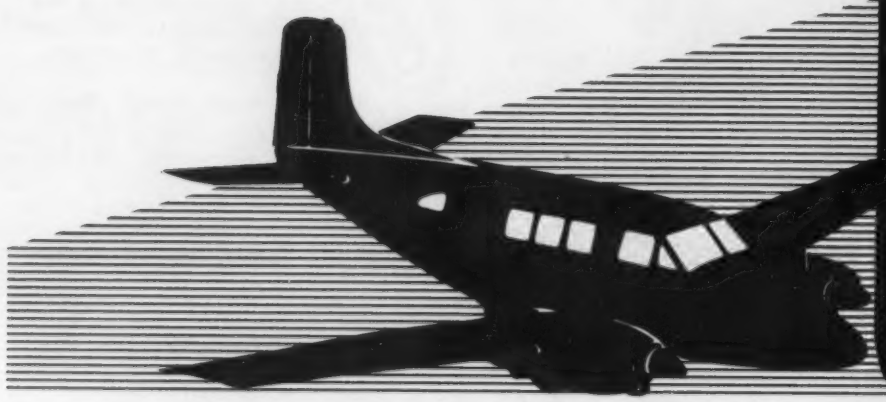
TWUA Wins Election. Textile Workers Union of America was the winner in a three-cornered election conducted recently by the National Labor Relations Board at the Le Moyne, Ala., plant of Courtaulds (Alabama) Inc. TWUA garnered 308 votes, 50 employees voted for representation by District 50 of the Mine Workers Union, and 92 voted to have no union.

Knitters-TWUA Sign Pact. After a full year of negotiations, Monarch Knitting Mills, Ltd., Dunnville, Ont., and Textile Workers Union of America have signed a 28-month contract by which the mill's 400 employees will receive an average of five cents an hour wage increase and fringe benefits.

SOUTHERN AIRWAYS COMPANY

Your Aerial Hosts in Greenville

OCTOBER 3-7, 1960



Current Model
Beechcraft
multi-engine airplanes
on display
Beechcraft Hangar
Greenville
Municipal Airport

Mock-up Cabin of
NEW QUEEN AIR
IN
Poinsett Hotel Lobby

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Emergency
Air Transportation
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Beechcraft AIRFLEET OF THE TEXTILE INDUSTRY

tropical blend fabrics tested as possible alternates for 100% wool fabrics in military tropical worsted fabrics, according to a recently released report by the Army's Quartermaster Research & Engineering Center.

New Kenaf Harvesters. Successful commercial development of two new hand-fed harvesters for kenaf has been announced by North Atlantic Kenaf International. The harvesters have been

tested on crops in Haiti, Guatemala, Colombia, Cuba, and Florida. One harvester, requiring a three-man crew, can produce 50,000 pounds of decorticated fiber during the five-month harvesting season; the other, requiring a five-mancrew and designed for larger farms, can produce 250,000 pounds during the season.

Railway Express Rates Cut. Reductions of as much as 60 per cent have been made on Railway Express shipments of certain textile products between the South and all other territories. Items included are automobile seat covers, awnings, bedspreads, blankets, cloth trimmings, curtains, dish cloths, drapes, napkins, piece goods (cotton, rayon, silk, wool, or synthetic), pillowcases, pillowcovers, sheets, slip covers, tablecloths, towels, and wash cloths. The reductions apply on shipments of all weights.

Cotton Fiber Research. Textile Research Institute has been awarded a two-year U.S. Department of Agriculture contract to investigate

nonaqueous swelling agents for cellulose to provide new chemical and physical modifications of cotton.

Same Story — Cotton Imports Soar. Cotton textile imports for the first half of 1960 exceeded a quarter billion yards of countable fabrics alone, and are running at three times the rate of the first half of 1959. In a statement submitted to the U. S. Tariff Com-

mission, calling for a halt in further tariff cuts, W. Ray Bell, president of The Association of Cotton Textile Merchants of New York, reported that by early August these imports had reached 252 million yards. This is 12 million yards greater than the total entries in all of 1959, which was itself a record-breaking year. Cotton-yarn imports in categories in which the U. S. is proposing new tariff cuts show imports three and one-half times the total for all of 1959, and 37 per cent greater than the combined imports for the whole six-year period 1954 to 1959.

Rabbit Ruckus. Imported yarns of 50-50 Angora rabbit hair and wool are underselling his product by $1.25 a pound, Arthur B. Otto, Jr., of Jonathan Ring & Co., Philadelphia, told the U. S. Tariff Commission recently; in fact, the duty-

paid price of the import is less than his cost of production, he said. In a man-bites-dog statement at the same hearing, an importer agreed with domestic mills that present tariffs on the product he imports are not unduly restricting trade. Gregory Shlomm, president of the importing firm of Amicale Yarns, Inc., joined the National Association of Wool Manufacturers

Continued on page 106

Estimated U. S. Synthetic Fiber Productive Capacity, Million Pounds

NYLON TYPE 66		ACRYLIC	
Du Pont Co.	275	Du Pont Co. ("Orlon")	120
Chemstrand Corp.	120-125	Chemstrand Corp. ("Acrilan")	50
TOTAL	395-400	American Cyanamid Co. ("Creslan")	27
NYLON TYPE 6		Dow Chemical Co. ("Zefran")	15
Allied Chemical Corp.	20	**TOTAL**	212
Firestone Synthetic Fibers Co.	12	POLYESTER	
Industrial Rayon Corp.	10	DuPont Co. ("Dacron")	70-75
American Enka Corp.	6.5	Tennessee Eastman Co. ("Kodel")	25
TOTAL	48.5	Beaunit Mills, Inc. ("Vycron")	10-12
MODACRYLIC		Fiber Industries, Inc. ("Fortrel")	40
Tennessee Eastman Co. ("Verel")	5	**TOTAL**	145-152
Union Carbide Chemicals Co. (Dynel)	6-8		
TOTAL	11-13	**TOTAL ALL FIBERS**	811.5-825.5

Source: Calvin Bullock

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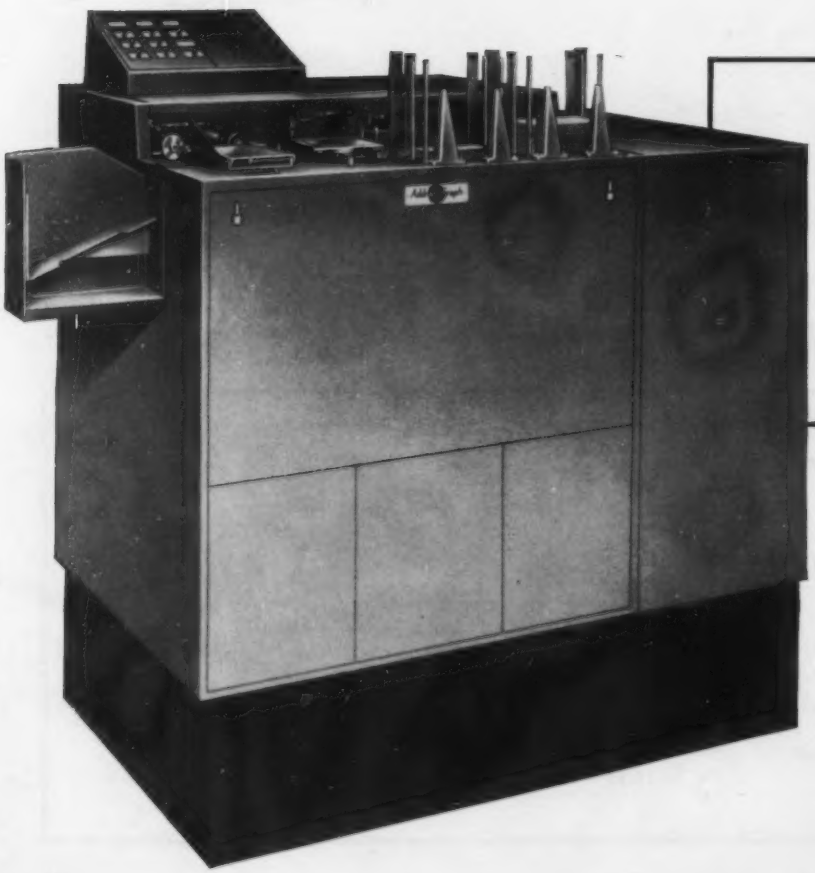

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TEXTILE INDUSTRY

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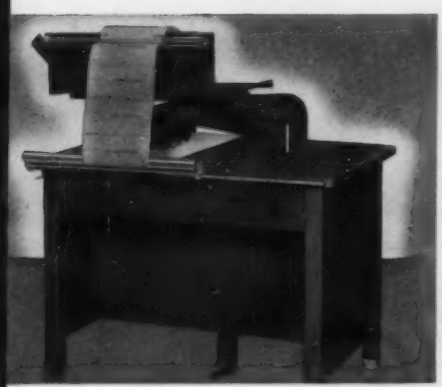
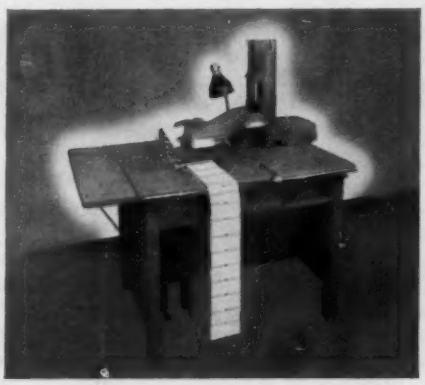


Addressograph Model 1949—automatically feeds continuous form gummed or pressure sensitive label stock; imprints data in one or two colors. Speeds as high as 1500 small labels per minute.



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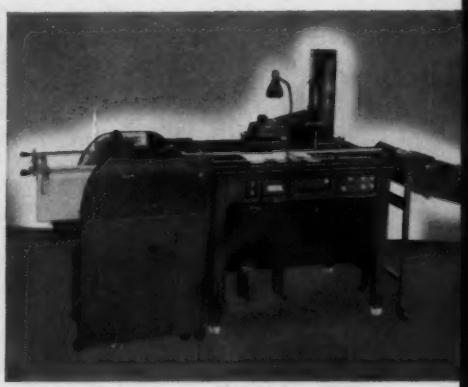

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A METHODS M CUTTING COSTS IS OUR BUSINESS

(from page 103)
in opposing any cuts in duties on Angora rabbit hair yarns. Mr. Shlomm is also president of Woonsocket (R. I.) Spinning Co., and said he would prefer to produce his yarns there, "but this will be impossible if I or others can import them at less than the cost of production in this country."

Crop Estimate. The U. S. Department of Agriculture estimates that the 1960 cotton crop will total 14,471,000 bales, down 87,000

bales from last year, but well above the 1948-1959 average of 13,710,000 bales.

Merchandising Notes

Sidney Blumenthal & Co., Inc., has introduced a line of upholstery fabrics in Chemstrand's Cumuloft continuous filament textured nylon yarn. The fabrics were shown to the trade for the first time at the recent International Home Furnishings Market in Chicago.

Kapart Creations have introduced the first stretch fleece to be used in infant's wear, in a bunting made of Creslan and nylon. The garment is part of Kapart's "Babygro" collection of one-size clothing items, designed to fit babies from birth until they weigh about 20 pounds.

American Carpet Institute has published a 60-page manual designed to aid retailers in planning effective carpet advertising. Titled "How to Pull Maximum Traffic With Your Retail Carpet Advertising," it's based on the Institute's five-year study of retail carpet advertising and the resulting Advertising Clinic program presented in a major market across the country last year. Copies are available without charge from ACI at 350 Fifth Ave., New York 1, N. Y.

Forty miles of these vertical louver blinds will be used in the 64-story Chase Manhattan Bank Building now going up in New York. The blinds are vinyl-coated Fiberglas fabric.

FUTURE EVENTS

Date		Event	Location
Oct.	3-7	Southern Textile Exposition	Textile Hall Greenville, S. C.
	6-8	AATCC national convention	Sheraton Hotel Philadelphia, Pa.
	7	Southern Textile Overseers Association annual meeting	Hotel Greenville Greenville, S. C.
	12	Tufted Textile Manufacturers Association annual workshop	Hotel Patten Chattanooga, Tenn.
	13-14	National Industrial Engineering and Management Clinic, sponsored by Industrial Management Society	Conrad Hilton Hotel Chicago, Ill.
	19-22	Carded Yarn Association annual meeting	Grove Park Inn Asheville, N. C.
	22	Textile Operating Executives of Georgia slashing and weaving discussion	Georgia Tech Atlanta, Ga.
	22	Alabama Textile Education Foundation	Auburn University Auburn, Ala.
	27-28	The Fiber Society	Washington Hotel Washington, D. C.
Nov.	12	Textile Education Foundation Inc.	Georgia Tech Atlanta, Ga.
	12	Alabama Textile Operating Executives carding and spinning discussion	Thach Auditorium Auburn, Ala.
		1961	
Mar.	23-25	American Cotton Manufacturers Institute annual meeting	Fontainebleau Hotel Miami Beach, Fla.
April	13-14	Alabama Textile Manufacturers Association annual meeting	Beuna Vista Hotel Biloxi, Miss.
	24-28	Knitting Arts Exhibition	The Auditorium Atlantic City, N. J.
	28-29	Georgia Textile Manufacturers Association annual meeting	Hollywood Beach Hotel Hollywood, Fla.

RECENT TECHNICAL AND COMMERCIAL DEVELOPMENTS

by J. B. Goldberg
Consultant to the Textile and Allied Industries
Exclusive

FIBERS AND YARNS

New Acetate Yarns. British Celanese Ltd. is now making available three new specialty acetate yarns. "Seraceta KN" is an acetate yarn which develops a latent crimp during fabric finishing. "Seratelle" yields a differential light reflection effect because of its coarse and rectangular shaped filaments. The hand and appearance which resemble natural straw are provided by a new yarn identified as "Ribbonstraw."

Hard Inorganic Fiber. Described as being "hard as sapphire," a new inorganic fiber developed by a Cleveland research firm is said to have very high strength with resistance to temperatures of 3750 F. A variation of its basic material, sacrificing strength, provides resistance to temperatures of up to 4750 F. Selling price is reported to be from $10-12 per pound, comparable to that of high-temperature glass fibers.

Italian Polyester and Acrylic Fibers. Snia Viscosa has announced plans to produce "Koplon" high-modulus-type rayon. Earlier unconfirmed news reports indicated that cost would be 30-40% cheaper than that of cotton of similar quality. "Acron" or "Acrolon" acrylic fiber is scheduled for production in 1961.

Nylon "Straw." The Swiss-made "Yuva" nylon straw is being offered by a New York importer. The yarn is produced in 900-denier size and priced at $3.35 per lb on cones. Surface interest is said to be similar to that of natural straw, with the dyeability of nylon 66, high abrasion resistance, and flex life comparable to that of any leather. Applications suggested include woven and knit shoe fabrics, automotive fabrics, upholstery, handbags, belts, hats, curtains, and lampshades.

More Polypropylene Fiber. A Japanese chemical company claims to have developed a new polypropylene process.

Whiter Nylon. Du Pont has introducted Type 91, described as a new whiter nylon yarn, developed especially for textured circular knit foundations. Whiteness is said to be retained after repeated laundering and even through chlorine bleaching. Other claims made are superior texturizing performance, greater stitch clarity, and fabric uniformity. Yarn is available as 140-denier at $1.69 and 70-denier at $1.80 per lb.

Rayon With Improved Whiteness. A viscose spinning composition containing titanium dioxide, along with blue and violet organic pigments to impart a whitening effect to filaments which would otherwise have a slight yellow tinge, was described in a patent issued to a North Carolina company.

Protein Fibers. A U. S. patent issued to an English company discloses a new "artificial" fiber composed of protein and carrageenin, and the process for making it.

MACHINERY AND PROCESSES

Crimped and Bulked Yarns. Three patents covering a crimping apparatus and process for imparting curl to thermoplastic yarns were recently assigned to the American Enka Corp.

Texturizing Nylon Yarn. A Philadelphia concern has disclosed the development of a new process for texturizing nylon yarns in 200-denier and heavier, said to be particularly suited for use in knitting bulky type outerwear.

Automatic Fiber Setter. The Turbo Machine Co. is offering a new automatic fiber setter with three times the capacity of earlier models of their machine. Setting can be carried out on skeins, bobbins, or sliver. Separate bulking operation is eliminated through rotation or oscillation of the basket holding the fiber.

Improved Hank Mercerizing. Designed in Germany, a new hank mercerizing machine is fully automatic in operation. Steeping is achieved by means of spray tubes, with excess caustic soda continuously removed and replaced by a fresh bath. Tests show 75-80% of well-mercerized fibers obtained on the machine, with exceptional uniformity.

FABRICS AND FINISHES

Irradiation to Improve Dyeability. Experimental work to improve the dyeability of polypropylene fibers by beta radiation is being carried out by a Long Island company. Catalysts used during the process are said to modify the fiber surface, with methacrylic acid grafts resulting in fabric dyeability with certain colors at an estimated cost of 2-3c per yard. Continuous processing is claimed practical, although machine cost for handling 15 million yards per year is expected to be about $250,000.

Fiber-Sealed Process for Orlon Fabrics. The Du Pont Company has announced the development of a fiber-sealed process to make fabrics livelier and with a fuller body. Orlon acrylic-wool jerseys finished by this technique are claimed to retain their shape, hold body, and resist sagging and crushing. The process, for which patent application has been filed, is said to effect a bonding of the fibers at

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In addition to its great versatility, Sterling TNA-5 is more than 99.9% pure. This remarkable purity offers users of TNA-5 the following important benefits.

1. Brighter colors, smoother finish. Fabrics dyed with TNA-5 come out smoother, softer, more evenly dyed. That's because TNA-5 is free of any calcium or magnesium impurities that can cause "salt streaks" or uneven colors.

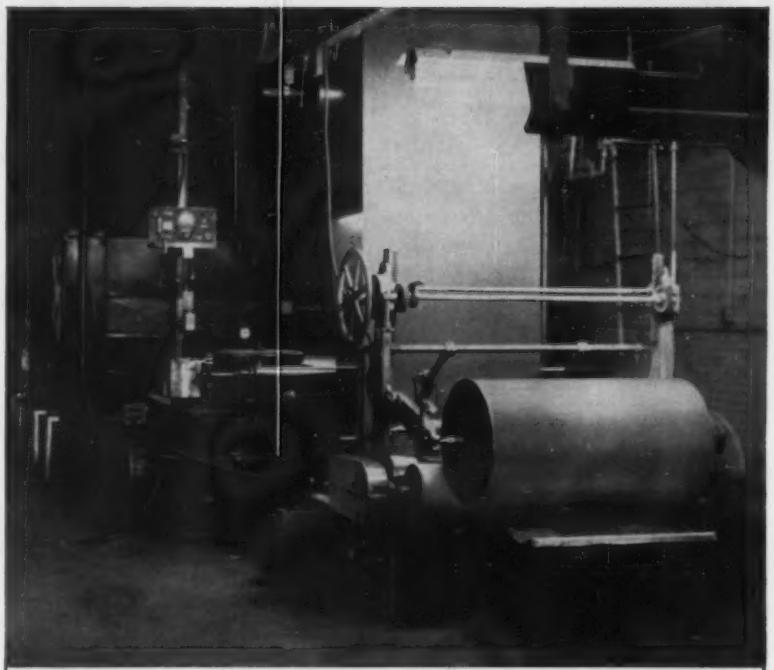
2. Readily soluble. Whether you add Sterling TNA-5 to a hot or a cold dye bath, it dissolves instantly and completely —and permeates the entire bath in seconds.

3. Effective used dry or in brine form. TNA-5 works equally well, whether it's used dry or as brine. However, many dyehouses lately have switched to brine (which is made automatically in the Sterling TNA-5 Dissolver), because they prefer the economies of bulk purchasing and reduced handling of TNA-5.

4. Recommended by dyestuff manufacturers. Because TNA-5 permits most dyes to show up better on finished fabrics, it has won the approval of the majority of dyestuff manufacturers. In fact, these people were instrumental in getting TNA-5 tested and accepted in many of the country's textile plants.

5. Saving on dyestuffs. When used to replace ordinary salt, Sterling TNA-5 can cut as much as $375 from a monthly dye expenditure of $5,000 by making dyes "work harder." TNA-5 forces *more* dyestuff out of solution and into the fibers being dyed.

6. Economical replacement for Glauber's Salt (anhydrous sodium sulphate). TNA-5 can effect good savings over the cost of Glauber's Salt. Yet it replaces Glauber's Salt on a pound-for-pound basis, and has an equally good exhaustion rate.



99.9% pure Sterling TNA-5 is used to dye highest-quality FORT REP/UTATION wash-and-wear fabrics. Picture shows a roll of FORT REP/UTATION being processed at the Old Fort Finishing Plant, a division of United Merchants & Manufacturers, Inc.

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If you'd like the assistance of an International technician on any problem concerning salt or brine—or further information on Sterling TNA-5—call our nearest sales office. Or write to us direct.

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INTERNATIONAL STERLING TNA-5 SALT COMPANY

"A STEP AHEAD IN SALT TECHNOLOGY"

points of intersection during finishing.

New Printing Machine. Proctor & Schwartz of Philadelphia will distribute a new German multicolor printing machine which uses solid-state dyestuffs. Only one print roller is utilized, the pattern being built up in mosaic-like form from dyestuffs originally in a plastic condition. Cloth is wet when printed and color depth is regulated by pressure and speed of cloth movement of from 17-22 yards per minute. Machine cost is over $60,000 and production cost is said to be approximately the same as that of a conventional five- or six-color print.

Papermakers' Felt. A recent U. S. patent has been issued to an English concern covering the production of a papermakers' felt containing Dacron and nylon. The cloth is rendered neutral electrostatically because the Dacron is electronegative and the nylon is electropositive as compared with cotton.

Wash-and-Wear Finish. A combination of latex with a pyridinium salt of 1, 2-dichloromethyl ether and sodium acetate as a buffer is reported to provide a durable, non-chlorine-retentive wash-and-wear finish for cellulosic fabrics. A stable cellulose ether derivative is said to be formed during the reaction.

Unique Wall Covering. A Japanese rayon producer has introduced a new wall covering material made by combining a fabric of flat filament rayon with a paper base. The backing color shows through the open spacing of the woven fabric made of a spun rayon warp and 900-denier flat filament rayon.

Metal-8-Quinolinolates Compared. USDA has released details of a comparative study of ten metal-8-quinolinolates to determine their effectiveness as protective treatments for fabrics exposed to weather. Commercial and laboratory-prepared copper-8, and zinc- and aluminum-8 showed no visible mildew growth at the end of the weathering period. Fabric treated with commercial copper-8 showed the highest level of strength retention (69-70%).

Eliminating Barré in Nylon Fabrics. A new dye retarding agent and assistant recently marketed by a New Jersey chemical manufacturer is claimed to eliminate barré in the dyeing of nylon fabrics with acid colors.

Colored Foam. About a dozen colors of polyurethane foam are being used by a New England manufacturer for matching knit and woven fabrics to which they are laminated in insulated outerwear.

Dyeing by Vacuum Impregnation. Reported in a USSR journal are details of a technique for continuous dyeing of heavy fabrics by vacuum impregnation. Fabric is carried over a suction grill on an endless belt of stainless steel filter netting. Good results are obtained with direct and sulfur dyes using a suction period a few seconds long.

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For further information use Handy Return Card, Page 243

EXECUTIVE VIEWS

Prepared by a man who is closely identified with the textile industry.

Bigger and Fewer

. . . the trend to consolidation of textile mills

THE tendency to consolidate scattered industrial plants into big, integrated organizations has been more pronounced in most other industries than in textiles. From the very nature of its operations, the textile industry has strongly resisted this trend.

The textile industry is one of the few in which no great accumulations of capital are necessary for efficient and successful operation. The 10,000-spindle mill can buy cotton just as cheap as an organization controlling a million spindles; and if the head of this little mill is a really good cotton man, he will perhaps buy better cotton for his money than the big concern gets, since he will probably go to a concentration point and pick out his own cotton.

The big chain of mills can buy machinery a little bit cheaper than a small mill, but textile machinery lasts so long that over its life this is a minor advantage. The little mill can make just as good yarn as the big ones; and in some outstanding instances, little mills have made better yarn than their big competitors.

One of the basic reasons for forming large industrial combines is to eliminate cutthroat competition and stabilize prices. The government keeps a cautious eye out to see that prices are not "over-stabilized" by monopoly practices.

Competition in the textile industry has always been a high, wide, and handsome proposition, and any efforts at stabilizing prices have met with resounding failure. There have been, over the years, very large accumulations of textile equipment under one management, but these usually resulted from growth rather than consolidations of physically scattered enterprises.

"The textile industry is still an industry in which the small operator labors under no disadvantage as compared with the big fellow, and where the 10,000-spindle mill can still make yarn as good and as cheap, or maybe cheaper, than his big competitor."

THE OUTSTANDING example of a big textile concern was the Amoskeag Manufacturing Company, which boasted about 735,000 spindles in its heyday. All of this equipment was in one yard, and was almost wholly the result of normal growth in a profitable enterprise. The Amoskeag did pick up the Stark Mills, but that plant was right in the Amoskeag yard.

The American Printing Company operated nearly 500,000 spindles at its peak, but here, again, the machinery was all in one area and resulted primarily from growth. The Manomet Manufacturing Company was another large outfit in New Bedford which just grew bigger and bigger.

There were some consolidations which were successful. Pacific Mills had its plants in Lawrence, where they resulted from normal growth. They later acquired two mills in Dover, N. H., and then large properties in South Carolina, where they picked up some mills for a song when a previous consolidation had collapsed. This Parker consolidation was one of the most ambitious projects undertaken in the textile industry up to that time, but it was unable to survive and the mills were picked up by various concerns with ready cash.

At a later date the Consolidated Textile Corporations set up an extensive combination of mills which almost at once began to disintegrate. The New England Southern was another combination which was not able to make the grade. Both of these were consolidations accomplished by picking up already existent mills. A later example was Textron.

There was one outstanding example of the American Woolen Company in the woolen and worsted branch of the industry, but it has gone the way of all flesh.

Some big northern mills did build southern plants, but this was strictly a growth proposition and not really a matter of consolidation. The Massachusetts Cotton

Mills built their large plant at Lindale, Ga., as an outstanding example of this type of expansion. There were some chains of mills operated by various selling houses where the mills had failed to operate profitably and had finally come into the ownership of the selling house. Some of these groups survived and still exist; others have fallen apart.

A great many persons well acquainted with the textile industry wondered if it would be ever possible to form big groups of consolidated mills that would endure under an integrated management.

During the past two decades some of this type of consolidation has been going on with apparent success, and the stability of the companies has been tested by the recent recession. Burlington Mills is the outstanding example of expansion by consolidation. J. P. Stevens has picked up a number of plants and integrated them into their system, and there have been other extensive consolidations.

A good many years ago the writer ventured the guess that if this type of consolidation was ever to be successful it would have to come through marketing rather than through management, and it seems that this has been the foundation of most of the really successful mergers.

Another lesson in the selective goring of oxen

Mill Uses Japanese Machinery

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Price, Quality Decide Lincolnton Firm To 'Plunge'

By PHILIP HALL
Staff Writer

LINCOLNTON — A textile mill located not here in 1939 is now profitably humming again with all new spinning equipment—made in Japan.

While this nation's textile industry complains about the imports of foreign-made cloth, Long Shoals Cotton Mills has become the first mill in America to be completely equipped with Japanese-made machinery.

"You like to have some rearrangement when you start your work out," Supt. S. H. (Buck) Mauney Jr. said Wednesday. "It didn't get a bit.

"Every mill man in the South told us we were crazy. I can tell you this, though: now that we've got it, they've been a little by the desire to look at the equipment."

Mauney said he did not want to give the impression that we've been closed. People were into about it but they certainly discouraged us. We had to make up our own minds."

What made up his mind?

"Price improvement, and quality. Look at the difference in the steel alone at U. S. Steps and those Japanese furnish. Look at the mechanical improvement.

"We've got nearly 5,000 spindles in here — half of what we had in the old mill. We bought Japanese spinning at only a spindle. For American-made, the best price was $39 a spindle.

"But that's only half the story. The Japanese equipment turns at three processes. The elimination of roving frames and that processing saved us another quarter million dollars in equipment.

"On top of that, we're getting better quality yarn and saving labor."

Mauney's so pleased with labor savings that he is raising his minimum wage from $1.15 an hour to $1.20. He will then run twelve shift, nine days. This is record in western for use of such items as fingertip, underwear, upholstery cloth and Velation blind cord.

The mill is running three shifts and operates [illegible] days a week.

Mauney says he has had several pleas from friends and business acquaintances over buying Japanese equipment.

"A man said one I was going to do it, I asked him why. He said, 'We bought a war with those people.'

"I said, 'Well, didn't you recently buy a German baler for your plant?'

"'That's different,' he said.

"'It's not different,' I said. 'We fought two wars with Germany and I had a brother in the last one.'

Mauney, a direct sort of man with steel gray eyes and an open collar, philosophized a bit about textile import problems:

"It's all accepted fact. We're one world now. The locking stand, our backyard. We're going to have a struggle, all of us in textiles.

"But the American way is if you can't make it in what you're in, get in something else."

The Long Shoals mill burned April 6, 1959, with a loss of $3 million. Insurance covered only $1 million. With that, Mauney and the company recuperated, at half the size of their 30,000 spindle plant which burned.

They bought the old Mauney spring mill, south of Lincolnton. Meanwhile, they are rebuilding Mr. Long Shoals building and equipping it to run synthetics (cotton only runs at the old Mauney).

When work is completed, the two plants will have 125 employes, 50 less than before the fire. Production will be the same, however, 23,000 pounds of yarn a week. Mauney said,

"We're not [illegible] the loss out, but we've got it [illegible]. Japanese spinning won't do you any good unless you can convert your whole mill to it. In that respect, we were lucky to have a fire."

As for being sensitive about the equipment:

"It's here for anyone who [illegible]. It's here for anybody who wants to look at it. We've got an 'open door' policy. We figure we can learn from anybody, so-closing the Japanese."

Mauney And Japanese-Built Machinery

While some textile men are in Washington telling the U. S. Tariff Commission why the industry needs protection from floods of imports from low-wage countries, other textile men are equally busy in ways of their own. Clipping is from the *Charlotte* (N. C.) *Observer*.

IN THE old days, brand names, except in very limited instances, meant practically nothing. The sheeting trade was an exception, and Pequot, Dwight-Anchor, Mohawk, and other famous brand names would carry great weight with shoppers; but, in the main, fabric was fabric and was distributed principally by jobbers who often marketed it under their own brand names so that the customer seldom knew what mill made the fabric. Sometimes merchants would tear off the mill's labels where these were used, so as not to encourage customers to demand some particular brand if they found it more profitable to sell something else.

Up until about 50 years ago the ready-made clothing industry was relatively unimportant compared with its present prominence. Women generally bought fabrics at the local stores, and either made them up into clothes themselves with the help of their daughters, or they got dressmakers to come to the house for days at a time and help with the sewing and fitting. Most of these women considered themselves good judges of materials who cared nothing about the pretensions of brand names.

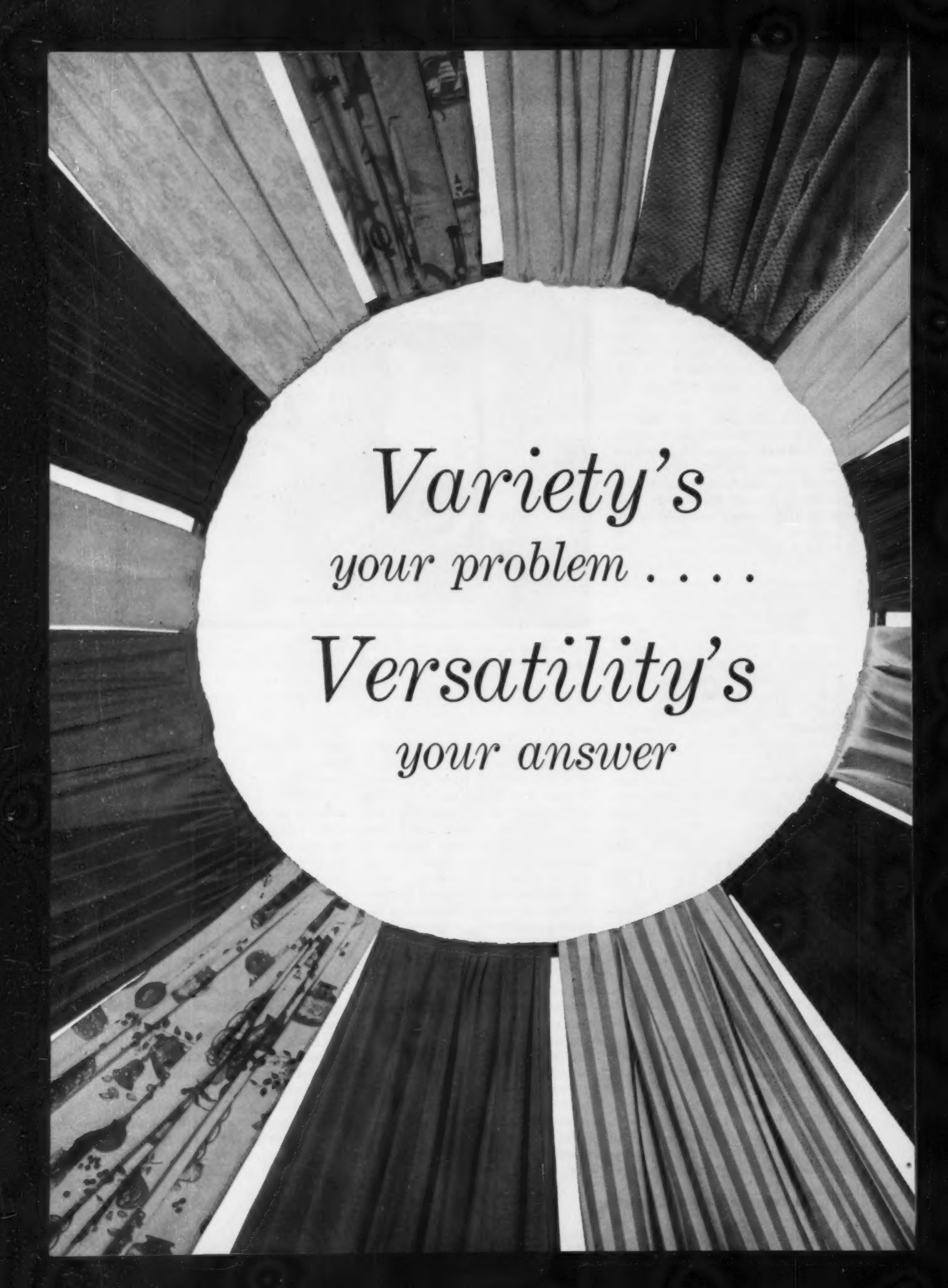
The rise of the brand name has been mostly a phenomenon of the last 30 or 40 years, and particularly of the past 10 or 15 years, when the big synthetic producers have spent millions of dollars popularizing their particular brand names, and the big chains of cotton spinners and weavers have also spent a lot of money plugging brand names.

The brand name is, then, a principal foundation stone of the textile consolidation structure.

Another stone has been the extensive amount of research which big, well-financed chains have been able to spend in the development of new finishes and attractive styles.

Another stone has been the continuing development of the ready-made clothing industry, where cutters are more and more inclined to stick with dependable sources of supply. This is particularly important with the large cutters, who may require repeat shipments on short notice and can't afford to be dependent on a small plant which may be unable to support them. them.

Probably the most important stone supporting this consolidation structure is Uncle Sam's system of taxation, which fosters the big firm, but works mightily to destroy the little one. Under the old economic system a textile mill could be a cherished family possession, handed down from generation to generation, but our socialistic system of taxation makes this difficult if not impossible any


Variety's
your problem . . . .
Versatility's
your answer

Today's changing modes of fabric consumption demand a high degree of weave room versatility. UNIFIL® Loom Winders are bringing this advantage to many modern mills.

With UNIFIL Loom Winders the weave room becomes completely market oriented, because a wide variety of filling yarns may be used; natural and man made; spun filament and textured. The single shuttle weave room can switch filling yarn from one count to another, from one fabric to another as quickly as fashion dictates — *and at no extra cost.*

In addition to minimizing the caprice of style as a production factor, UNIFIL Loom Winders drastically reduce inventory and production planning, work scheduling and employee training. This is accomplished by the elimination of several operations.

UNIFIL's unmatched versatility meets today's needs and tomorrow's markets. It allows mills to wind from any filling supply *economically*. Quills are wound and shuttles loaded, empty quills stripped and returned for rewinding — *all automatically at the loom!*

The UNIFIL story is one of versatility and economy. It clearly indicates why leading textile mills consistently reorder UNIFIL Loom Winders. Call your nearest Leesona Sales Engineer — in Boston, Philadelphia, Charlotte, Atlanta or Los Angeles. Or write LEESONA CORPORATION, P. O. Box 1605, Providence 1, Rhode Island. Keep pace with your market with UNIFIL.

Some of the many modern mills
that are meeting today's challenges with
UNIFIL *Loom Winders*

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AMEROTRON COMPANY
ARCO MILLS
BEAUNIT MILLS, INC.
BERKSHIRE HATHAWAY, INC.
BLANCHE COTTON MILLS
BOONTEX FABRICS
BURLINGTON INDUSTRIES, INC.
CANADIAN CELANESE, LTD.
CANNON MILLS CO.
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CONE MILLS CORP.
CONSOLIDATED TEXTILES
DOVER MILL group
DRAYTON MILLS
EXPOSITION COTTON MILLS CO.
GALLANT MFG. CO.
GLEN RAVEN SILK MILLS
GREENWOOD MILLS
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KEYSTONE WEAVING MILLS
LAURENS MILLS
M. LOWENSTEIN & SONS, INC.
MACHIAS MILL
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PAXON FABRICS CORP.
PONEMAH MILLS
RICHARD TEXTILES
RIVERSIDE MILLS, INC.
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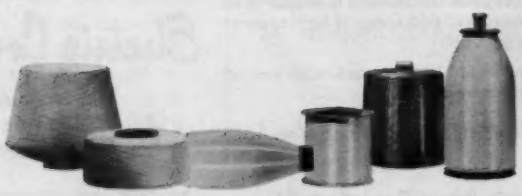
WILLIAM SKINNER & SONS
STANDISH MILLS
STARR MILLS CORP.
J. P. STEVENS & CO.
STONECUTTER MILLS CORP,
TALLASSEE MILLS
UNITED MERCHANTS & MANUFACTURERS, INC.
WAUMBEC MILLS, INC.
WOODSIDE MILLS



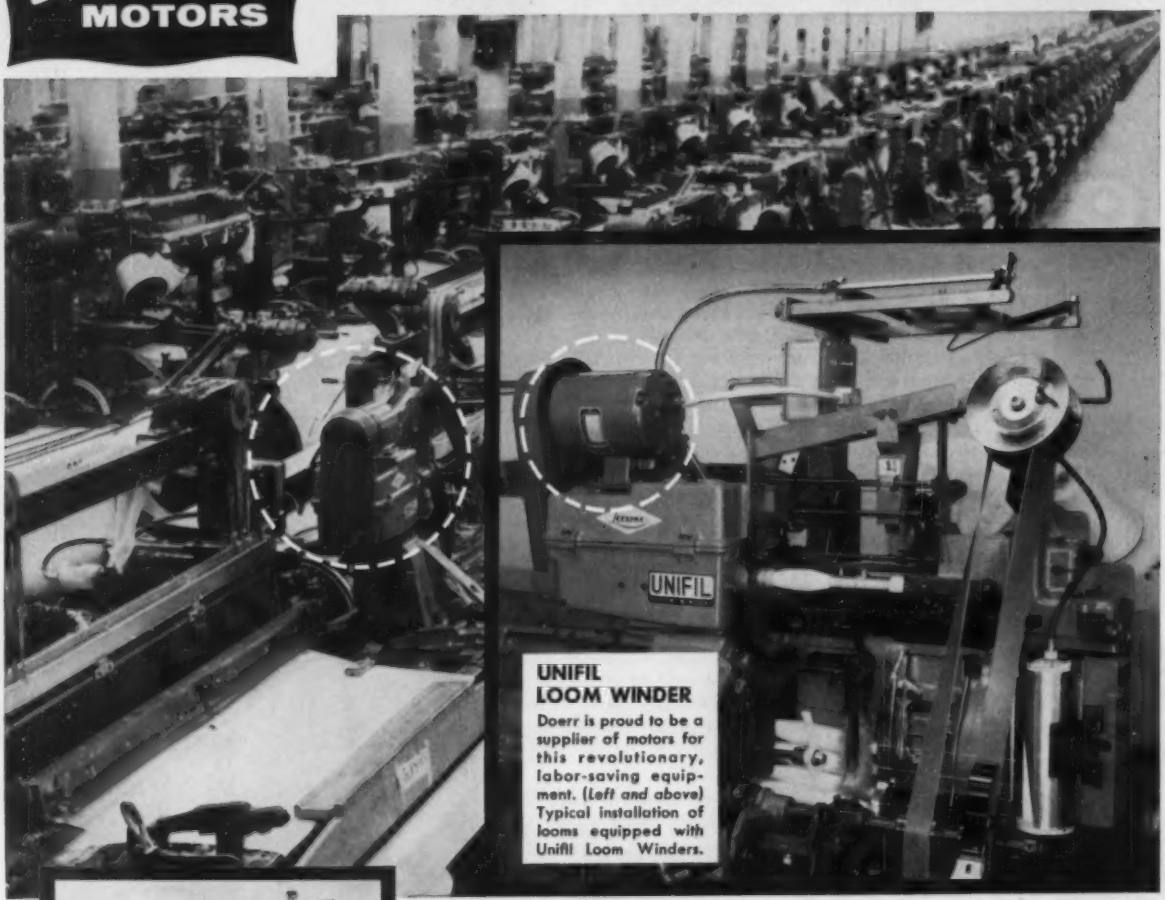
LEESONA

23.0.35

GET TO KNOW

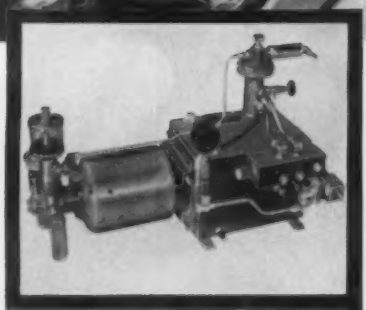
DOERR® MOTORS

.....FAST-GROWING NAME IN THE TEXTILE INDUSTRY



UNIFIL LOOM WINDER

Doerr is proud to be a supplier of motors for this revolutionary, labor-saving equipment. (*Left and above*) Typical installation of looms equipped with Unifil Loom Winders.



FIFE PNEUMO HYDRAULIC AUTOMATIC WEB GUIDE POWER UNIT

Used for automatic edge guiding and center-line guiding of cloth and other flexible material processed in continuous web-fed operations. Unit combines John S. Barnes hydraulic pump and Doerr ½ hp. motor.

DOERR OFFERS TEXTILE MOTORS IN MANY SIZES AT NO PRICE PREMIUM

IN AMERICA'S great textile industry, the reputation of Doerr motors is growing rapidly — because of specialized Doerr designs and the willing cooperation that is always available.

At no price premium, Doerr gives you textile motors with all the features you want. These totally enclosed, non-ventilated, streamlined "smoothies" have no ribbed surfaces or projections—no fans or fan guards to clog with lint.

Ball bearings are lifetime-lubricated. And a range of frame sizes is available in both fractional and integral horsepower ratings to 5 hp.

Doerr would like to work with you on your motor applications.

Write for new catalog!

1½ hp., 184-frame Doerr textile motor.

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Electric Corporation

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longer. The more profitable the mill, the bigger the tax bite.

When one owner dies and his heirs have to try to run the plant with most or all of the working capital gone, the government demands its pound of flesh promptly; and if the deceased owner had been imprudent enough to try to improve his property and modernize it, instead of accumulating a lot of cash for inheritance taxes, the harrassed heirs often had no recourse but to sell the business to pay Uncle Sam's Harpies.

The frequency of such occurences has led many prudent mill owners to decide that the logical thing to do was to get rid of the mill while this could be done to advantage rather than as a distress operation following the owner's death. A great many textile mills were owned almost completely by one person or by such a small group that a funeral could practically wreck the company.

We have not become so completely socialistic as to deny the right to give property to a charitable foundation to keep the government from despoiling it, and some textile people have preserved the continuity of operation of their plants by setting up such foundations. Where one man owns a plant of any size, this is practically the only way he can assure the continuity of his business, since keeping a plant up-to-date and in good physical condition costs a lot of money, and when this money has not been retained as a surplus for paying taxes, the outlook for a plant may be grim.

Truly the power to tax is the power to destroy. To prevent such destruction, some well - heeled chain operators can pick up a plant to enlarge the chain. In the old days it was rather difficult and expensive to pick up good plants. Owners of profitable operations were reluctant to sell, and generally wanted a fancy price for the property when some amalgamation-minded concern wanted it.

Our more or less confiscatory tax system has given owners of mill properties an entirely different sense of values. We recall one large mill which was virtually given away by the owner during his last illness to get it out of his portfolio where it could have been ruinous to many of his other and more substantial investments. There have been other instances of properties sold merely for the cash in the bank to avoid taxes. This has made it possible for people who wish to construct large consolidations to get additional mills at reasonable prices which will probably make possible continuity of operation even in dull times.

IT IS going to be very interesting, however, to see what will happen in our industry in a time of real cutthroat competition lasting long enough to insure only the survival of the fittest.

The textile industry is still an industry in which the small operator labors under no disadvantage as compared with the big fellow, and where the 10,000-spindle mill can still make yarn as good and as cheap, or maybe cheaper, than his big competitor.

The industry has recently been through a recession, and we all pray that it will not go through a real depression ever again. But you never can tell about the textile industry. It is still more or less high, wide, and handsome.

Robert E. Pomeranz
President, Roberts Company
Sanford, North Carolina
Mfrs. of Textile Machinery

"Sales of Roberts ARROW Spinning Frames for 1960 should be 50% over 1959, which jumped 60% over 1958. Growth needs increasing funds so that customers can be adequately served. In Textile Banking Company, we have found a policy that is simple and realistic. Its management has an unlimited desire to accommodate itself to our needs and those of our customers."

* * *

TBC credit and financial services are available in many fields of industry. They are most effective for manufacturers with annual sales of $500,000 and over. A TBC officer will give prompt attention to any inquiry.

TEXTILE BANKING COMPANY
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SUBSIDIARIES:
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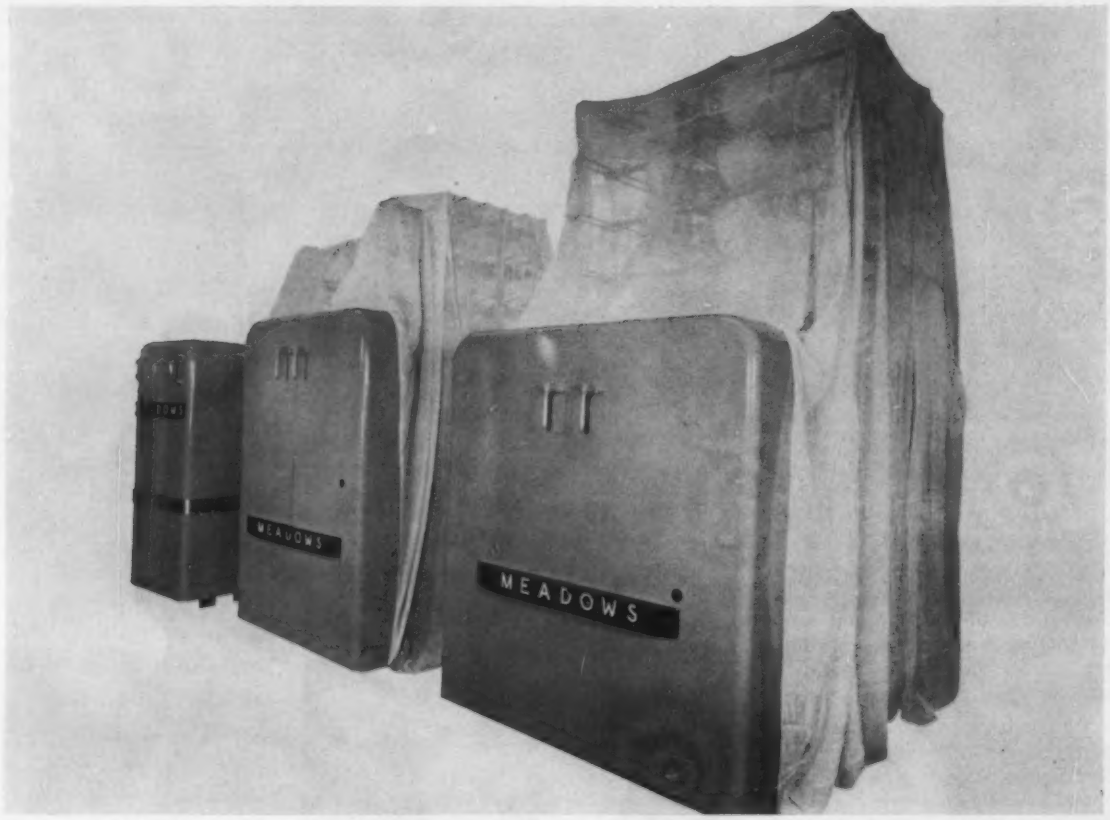
Pacific Texbanc, Inc., Los Angeles

TBC

See MEADOWS TWISTERS With YEARS-AHEAD DESIGN

COMPLETELY NEW, EXCLUSIVE FEATURES

BOOTH 812 . . . Greenville Textile Exposition



If you miss Greenville, visit our Atlanta showroom, or write for detailed data.

MEADOWS MANUFACTURING CO.

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Atlanta 10, Georgia

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Typical of the newest fashion browns, the original colors as well as the tailored lines of this ensemble were designed by

Bill Atkinson

for Glen of Michigan.

Subtle variations of soft, golden-country-life tones are currently coming to the fore.

To reproduce them on cellulosic fibers . . . with outstanding wash-and-light fastness . . . we recommend our Carbanthrene® Vat Dyes. Because of their uniform, fine particle-size, these superior, American-made vats disperse evenly to give you clean level results, consistent from batch to batch. Waste and redyes are minimized and dye yields are improved.

The Carbanthrenes listed below are among those presently proving most useful to dyers of cottons, rayons and blends.

For the newest brown shades on other fibers, whatever fastness and working properties are required, let our nearest office suggest economical formulations based on National® Dyes.

Carbanthrene Yellow Brown 3G Paste • Carbanthrene Brown AR Double Paste • Carbanthrene Brown AG Double Paste
Carbanthrene Brown VR Paste • Carbanthrene Khaki 2G Double Paste • Carbanthrene Olive G Paste • Carbanthrene Olive Paste

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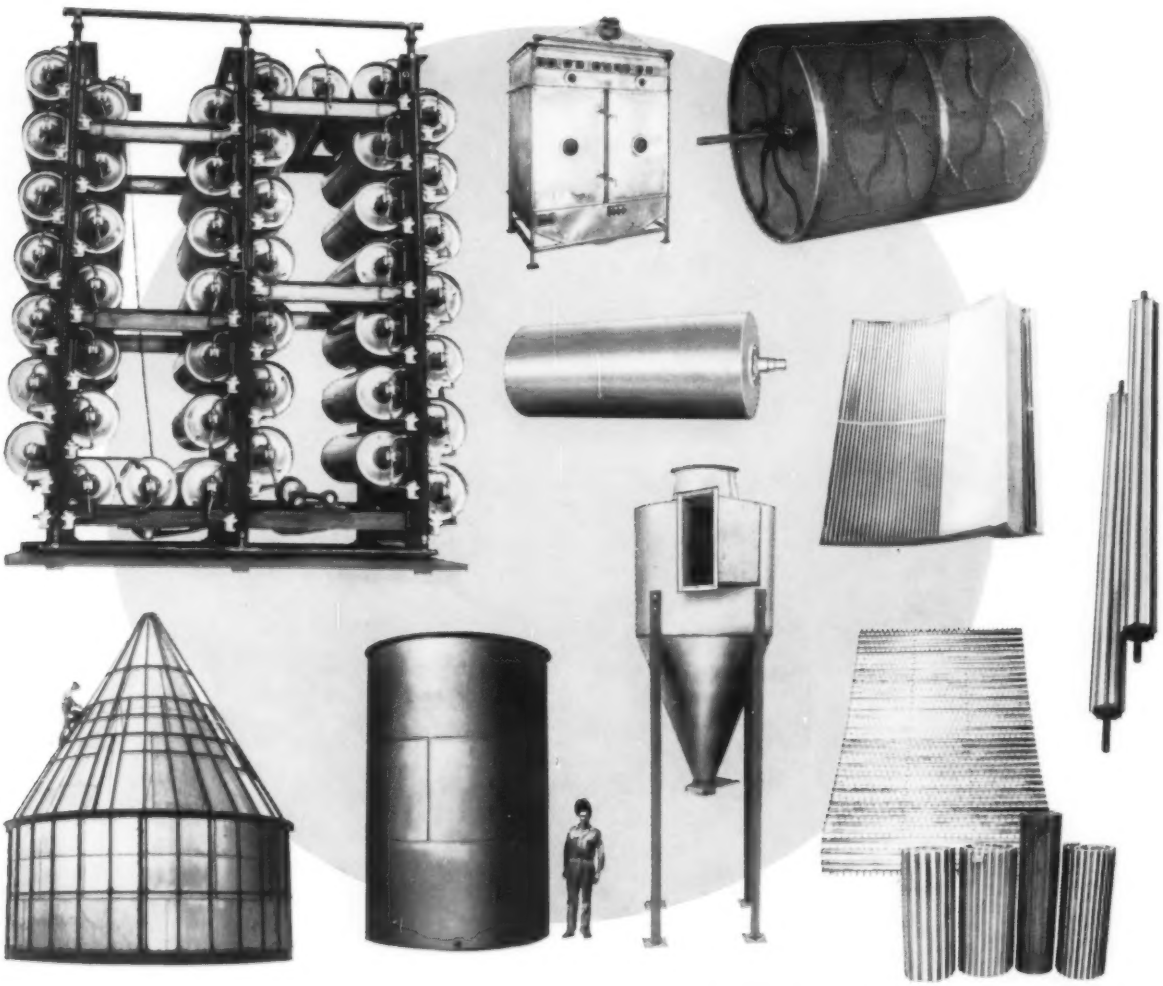
"Custom tailors" to industry

Since 1926, Sims has been designing and fabricating the specialized equipment called for in the manufacture of textiles.

As "custom tailors" of stainless steel, Sims' recommendations, designs, and fabrications are dictated by your particular problem, need, requirement or application of equipment. And, Sims specialists are on the job from start to finish to assure meticulous attention to even the smallest detail... the craftsmanship that unconditionally guarantees that the finished product will meet and surpass your most exacting specifications.

rolls · vessels · kettles · coils · size boxes · linings · cylinders · machinery · air and material handling systems . . . for textile · chemical · food processing · pulp-paper and other industries



Write, wire or call today for complete information:

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Friday Textile Machine & Supply Co., Gastonia, N. C.

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METAL WORKS
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Specialists in
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21st Southern
85
GEORGIA
Charleston
Textile
Columbus
Exposition
Brunswick

Southern Textile Exposition 1960

A PREVIEW OF THE GREENVILLE SHOW

WHEN: Oct. 3-7, 1960; 9 A.M. to 6 P.M. daily.

WHERE: At Textile Hall (and in a second building facing it) in downtown Greenville, S. C.

HOW TO GET THERE: By air—Eastern, Delta, and Southern Airways. By rail—Southern Railway. By bus—Greyhound, Trailways, and Eagle bus lines. By auto—U. S. highways 25, 29, 123, and 276.

ADMISSION TO SHOW: By identification badge only. This is good for all five days and will be furnished when you register in the lobby just inside the Main Entrance to Textile Hall on West Washington Street.

WHAT YOU'LL SEE: This 26-page preview includes plans of most of the 405 exhibitors, as well as where representatives can be reached after show hours. Note that items being shown for the first time are listed separately, and in examining the floor plan take special note of the additional space required this year which is located across W. Washington St. from Textile Hall.

. . . SEE YOU IN GREENVILLE!

ABC ..... **Booth 904-A**

ABC Photo Gravure Supply Co.
125 Fifth Ave., Paterson 4, N. J.

ABBOTT ..... **Booth 813**

Abbott Machine Co.
Wilton, N. H.

ABINGTON ..... **Booth 829**

Abington Textile Machinery Works
200 Wales St., North Abington, Mass.

EXHIBITING: "Cardpen," a drafting attachment that replaces calender rolls on a cotton card and provides a 20 per cent increase in production without loss of quality; latest vacuum stripping system for revolving flat cards; hand knotters; automatic remote controlled bottom discharge receiver.
PERSONNEL IN BOOTH:
J. W. Burbine, sales mgr.
W. W. Brame, selling agent
M. R. Bradley, svc. dept.
S. Smith, Jr., treas.
O. H. Ramo, chief eng.

ACME CHAIN ..... **Booth 903**

Acme Chain Corp.
821 Main St., Holyoke, Mass.
(See SNYDER)

ACME STEEL ..... **Booth 356**

Fabricated Materials Division
Acme Steel Co.
1135th & Perry Ave., Chicago 27, Ill.

EXHIBITING FIRST TIME: AIM Brand rack for heavy duty storage.
ALSO SHOWING: AIM Brand slotted angle and AIM Brand floor plate.
PERSONNEL IN BOOTH:
M. G. Giergarth, mgr. sou. region
J. J. Burns, asst. sales mgr.
T. H. Ronan, sales rep.
D. C. Wade, sales rep.

ACME STEEL STRAPPING ..... **Booth 517**

Acme Steel Products Division
Acme Steel Co.
1135th & Perry Ave., Chicago 27, Ill.

EXHIBITING FIRST TIME: Fully automatic compression-strapping machine.
ALSO SHOWING: Various power and manual strapping tools and accessories.
PERSONNEL IN BOOTH:
G. E. Easley, sou. area mgr.
D. C. Jorgensen, dist. mgr.
J. B. Farr, spec. rep.
M. M. Brown, sales rep.
E. H. Jones, sales rep.
E. S. Lumpkin, sales rep.
J. N. McLean, sales rep.
J. B. Quarles, sales rep.
J. H. Scott, sales rep.
S. F. Woodley, dist. mgr.
RESIDING AT: Greenville Hotel and Poinsett Hotel.

ACOUSTICA ..... **Booth 506**

Acoustica Associates, Inc.
Plainview, N. Y.
(See ELECTRO MOTION CORP.)

ADAMS ..... **Booth 447**

Adams, Inc.
209 E. Stone Ave., Greenville, S. C.

EXHIBITING: Adamstop stop motion for roving and spinning frames.
PERSONNEL IN BOOTH:
S. J. Adams, pres.
J. B. Adams, sales
C. S. Adams, sales
L. A. Deal, sales
E. F. Walker, eng.
F. B. Bailey, eng.

CHET ADAMS ..... **Booth 241**

Chet Adams Co.
P. O. Box 3073, Greensboro, N. C.

ADDRESSOGRAPH ..... **Booth 362**

Addressograph Multigraph Corp.
1200 Babbitt Rd., Cleveland 17, O.

EXHIBITING FIRST TIME: Multigraph Model 2550 for order invoice writing; Multigraph Model 750 for general duplicating.
ALSO SHOWING: Addressograph Optical Code Reader, Class 9500, for tabulating cards from various sources; Addressograph Class 1947, for automatic preparation of piece tickets; Addressograph Class 1948, for preparation of hang tickets with strings attached, which will also be shown preparing baling tickets.
PERSONNEL IN BOOTH:
D. F. Green, Addressograph mkt. dev. rep.
N. J. Merette, Multigraph mkt. dev. rep.

AKRON SPOOL ..... **Booth 247**

Akron Spool & Mfg. Co.
410 Progress St., High Point, N. C.

EXHIBITING FIRST TIME: The "Spobbin," a reworked roving bobbin on which spool heads have been placed, for increased roving capacity.
ALSO SHOWING: Spools and bobbins.
PERSONNEL IN BOOTH:
J. B. Hawley, pres.
M. L. Johnston, field rep.
RESIDING AT: Holiday Inn.

ALDRICH ..... **Booth 269**

Aldrich Machine Works
Greenwood, S. C.

EXHIBITING FIRST TIME: Blending feeder which holds about twice as much stock as conventional feeders, without increase in length; has new style combing roll and an apron of new design.
ALSO SHOWING: Finisher section of single-process picker, showing high-compression calender; air filter; Pepper Shaker opener and feed table following Pepper Shaker.
PERSONNEL IN BOOTH:
A. P. Aldrich, Jr., pres.
B. R. Morris, Ga.-Ala.-Tenn. rep.
W. D. Wornall, Carolinas-Va. rep.

ALLEN ..... **Booth 101**

Allen Beam Co.; Allen Warper Co.
Box 98, Acushnet Sta., New Bedford, Mass.

EXHIBITING: Model G 3 Warper with 40" warper beam, adjustable beam flange, and electronic tension control.
PERSONNEL IN BOOTH:
R. U. Thornton, pres., Allen Beam
W. L. Petersen, treas., Allen Warper
W. F. Tinsley, sou. mgr.
RESIDING AT: Greenville Hotel

ALLEN-BRADLEY ..... **Booth 413**

Allen-Bradley Co.
136 W. Greenfield Ave., Milwaukee 4, Wis.

EXHIBITING: Electric motor controls, including manual and magnetic starters, pilot devices and accessories.
PERSONNEL IN BOOTH:
L. P. Spoon, br. mgr.
R. E. Wilson, br. mgr.
W. R. Calverley, sales eng.
R. M. Chastain, sales eng.
W. W. Rodgers, sales eng.
J. C. Lomax, sales eng.
RESIDING AT: Greenville Hotel

ALLENTOWN BOBBIN ..... **Booth 316**

The Allentown Bobbin Works, Inc.
417-431 N. 14th St., Allentown, Pa.

EXHIBITING: Bobbins and spools for the processing of fine-denier yarns such as silk, rayon, nylon, and combination yarns.
PERSONNEL IN BOOTH:
H. W. Mack, vice-pres.
RESIDING AT: Greenville Hotel

ALLIED CHEMICAL ..... **Booth 262**

Allied Chemical Corp.
261 Madison Ave., New York 16, N. Y.

LOUIS ALLIS ..... **Booth 511**

The Louis Allis Co.
427 E. Stewart St., Milwaukee 1, Wis.

EXHIBITING FIRST TIME: Inverted a-c motor, for surface winding applications in the synthetic textile industries; transistor regulator panel, the "brain" of the Louis Allis adjustable speed drive system; "Syncro-Range" Drive, an integrated system consisting of an adjustable frequency power supply, one or more "Syncro-Spede" motors, and a control panel; and a pancake motor which is up to 54 per cent shorter than a standard flange motor of equal rating.
ALSO SHOWING: "Clean-Flo" textile motor; "Ajusto-Spede" a-c motors; and "Syncro-Spede" synchronous induction motor.

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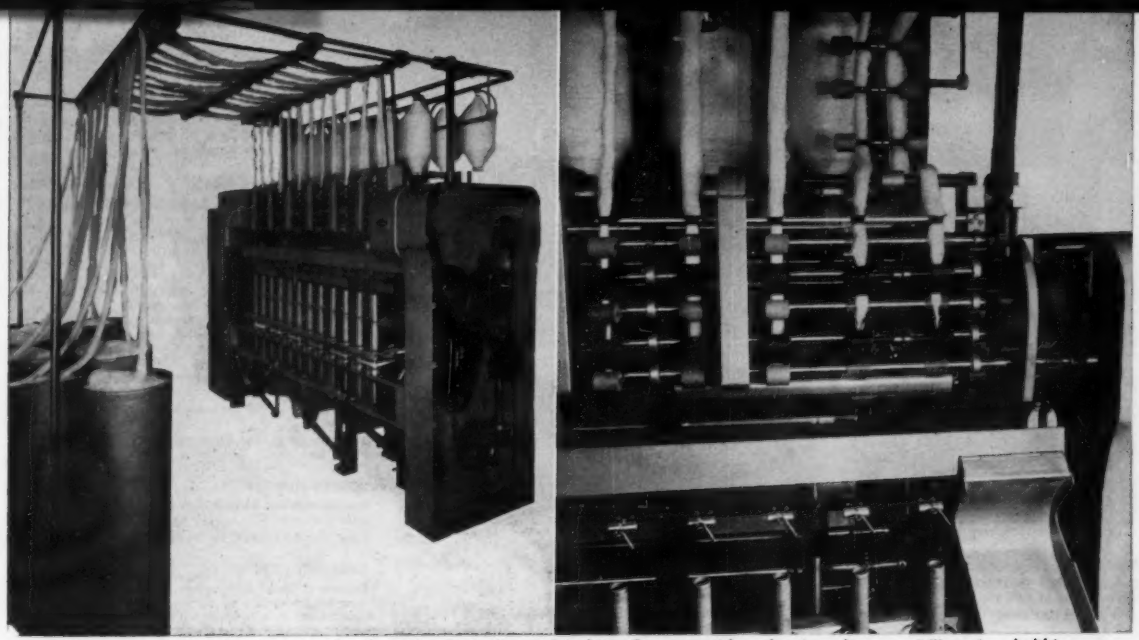


"Vertical-Y 5" spinning frame to be shown by F. A. Young Machine Co. uses either drawing sliver or 14" roving bobbins.

Louis Allis continued

PERSONNEL IN BOOTH:
M. E. Weltekamp
J. Brown
L. A. Hearn, Jr.
J. R. Smith
B. R. Becker
RESIDING AT: Poinsett Hotel

ALLIS-CHALMERS ..... **Booth 142**
Allis-Chalmers Mfg. Co.
P. O. Box 512, Milwaukee 1, Wis.

AMERICAN AIR FILTER ..... **Booth 434**
American Air Filter Co., Inc.
215 Central Ave., Louisville 8, Ky.

AMERICAN LAVA ..... **Booth 463**
American Lava Corp.
Cherokee Blvd., Chattanooga 5, Tenn.

EXHIBITING FIRST TIME: New designs and new materials in thread guides.
ALSO SHOWING: Complete line of AlSiMag ceramic thread guides for the textile industry and wire guides for the wire industry.
PERSONNEL IN BOOTH:
J. B. Shacklett, sales mgr., Titania div.
J. W. Crisp, sales eng., Titania div.
J. E. Hicks, Jr., sales eng.
W. H. Cooper, sales eng.
RESIDING AT: Greenville Hotel

AMERICAN MOISTENING ..... **Booth 840**
American Moistening Co.
Cleveland, N. C.

AMERICAN MONORAIL ..... **Booth 111**
The American MonoRail Co.
1111 East 200th St., Cleveland 17, Ohio

EXHIBITING: Overhead automatic cleaning and vacuum systems for spinning frames, roving frames, and looms, including ceiling cleaners. Chainless and cable-way conveyor systems.
PERSONNEL IN BOOTH:
C. L. Fell, vice-pres., mktg.
L. R. McEachern, div. mgr. SE div.
V. W. Cook, dist mgr. Charlotte dist.
H. J. Gleaton, dist. mgr.
J. L. Brown, dist. mgr.
C. Sheets, mgr. conveyor div.
E. H. Doerger, adv. mgr.
J. Mikel, sales eng.
J. Whitted, sales eng.
E. S. Murray, sales eng.
RESIDING AT: Greenville Hotel

AMERICAN PAMCOR ..... **Booth 125**
American Pamcor, Inc.
181 Hillcrest Ave., Havertown, Pa.

EXHIBITING: Solderless, crimped terminals and the like for electric wiring repair, maintenance, and service; with pertinent tools.
PERSONNEL IN BOOTH:
J. Gleason, dist. sales mgr.

AMERICAN PULLEY ..... **Booth 479**
American Pulley Co.
4200 Wissahickon Ave., Philadelphia, Pa.

EXHIBITING: V-belt drives, adjustable pinmeter V-belt drives, shaft mounted reducers, hand trucks, portable elevating truck, hand lift trucks.
PERSONNEL IN BOOTH:
W. C. Bass, exec. vice-pres.
J. C. Bannan, asst. sales mgr.
H. L. Tygesson, mgr., mat. hand. div.
S. C. Evans, dist. mgr.
J. E. Williams, dist. mgr.
H. T. Scullion, asst. adv. mgr.
RESIDING AT: Holiday Inn

AMERICAN RIETER ..... **Booth 820**
American Rieter Co., Inc.
600 Passaic Ave., West Caldwell, N. J.

EXHIBITING: Model DO high-speed drawing frame, Model F1 high-speed slubber, scale model of "Automixer" large-capacity fiber mixing machine, drafting arrangements, spindles, flyers, and spare parts.
PERSONNEL IN BOOTH:
J. F. Dulken — H. Suter
R. O. Halter — W. Plowden
H. Klaeui

AMERICAN SAFETY TABLE ..... **Booth 234**
American Safety Table Co., Inc.
Reading, Pa.
(See HOLLISTER-MORELAND)

AMERICAN STOCK GEAR ..... **Booth 429**
American Stock Gear Division
Perfection Gear Co., Harvey, Ill.
(See VALENTINE)

AMERICAN VISCOSE ..... **Booth 220-B**
American Viscose Corp.
350 Fifth Ave., New York 1, N. Y.

TEXTILE REPORTER ..... **Booth 225**
"America's Textile Reporter"
286 Congress St., Boston, Mass.

ANHEUSER-BUSCH ..... **Booth 513**
Anheuser-Busch, Inc.
721 Pestalozzi St., St. Louis, Mo.

EXHIBITING: Corn starches and dextrines
PERSONNEL IN BOOTH:
R. F. Amacher, div. vice-pres., Corn Products Div.
C. J. Liebman, mgr., tech. serv. dept.
A. H. Luetkemeyer, mgr., reg. opr.
W. P. Hope, SE sales mgr.
J. S. Abell, sales and tech. svc. rep.
T. M. Hampton, Jr., sales rep.
RESIDING AT: Greenville Hotel and Howard Johnson Motor Lodge.

ARMSTRONG CORK ..... **Booth 816**
Armstrong Cork Co.
Lancaster, Pa.

EXHIBITING: Complete line of textile products, including drafting rolls, aprons, and loom supplies; a new laboratory spinning unit in operation; a photographic display of one of the oldest spinning frames, prototype of today's modern spinning frames; and nine current methods of high draft spinning.
PERSONNEL IN BOOTH:
T. L. Hill, mgr., text. prod. sales
R. S. Olcott, mgr., text. res.
J. V. Ashley, mgr., Greenville dist. off.

Armstrong Cork continued

ARMSTRONG MACHINE ..... **Booth 439**
Armstrong Machine Works
856 Maple St., Three Rivers, Mich.

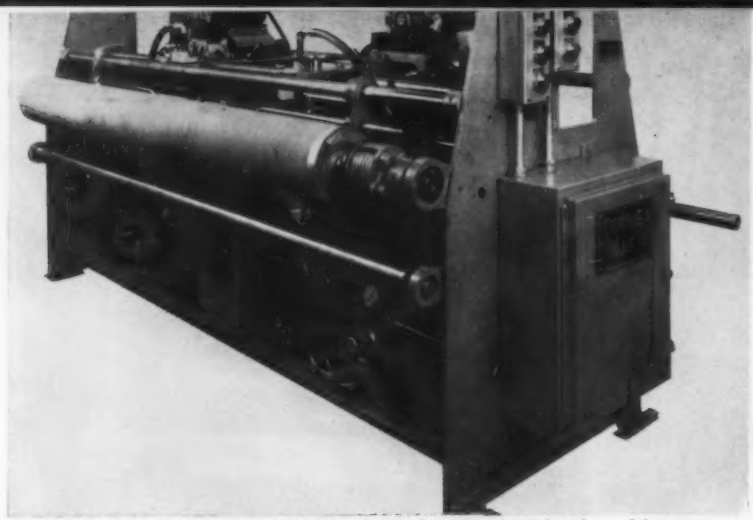
EXHIBITING: Inverted bucket steam traps used to drain textile equipment; steam-type humidifiers for plant humidification; syphon scoops used to drain dry cans; glass model of the inverted bucket trap, operating on 7-lb steam pressure; models of traps, humidifiers, and scoops.
PERSONNEL IN BOOTH:
O. E. Ulrich, factory rep.; salesmen from Abbey Steam Specialty Co., Allan T. Shepherd Co., Southeastern Products Corp.
RESIDING AT: Catalina Motor Lodge

ASHWORTH ..... **Booth 122**
Ashworth Bros., Inc.
Box 670, Fall River, Mass.

EXHIBITING: Card clothing for cotton, wool, worsted, synthetic, rayon, and asbestos cards. Brush clothing and card clothing for special purposes, including hardened point, plough ground, and side ground card clothing. Flat clothing, both regular and hardened point, for solid, split, or flexible metallic flats. Metallic wire for cotton, woolen, worsted, and synthetic cards; licker-in wire and garnet wire. Flexible bend grinding.
PERSONNEL IN BOOTH:
R. C. Ashworth, Jr., pres.
W. J. Flynn, Jr., vice-pres.
H. Ashworth, treas.
A. E. Johnston, Jr., southern sales mgr.
J. E. Seacord, Jr., Charlotte mgr.
W. G. Halstead, Atlanta mgr.
F. L. Armitage, Jr., woolen & worsted mgr.
R. C. Ashworth, III, sales & svc.
R. Clary, sales & svc.
M. Croce, sales & svc.
T. F. Hart, sales & svc.
C. C. Withington, Jr., sales & svc.
RESIDING AT: Holiday Inn

ATKINSON, HASERICK ..... **Booth 817**
Atkinson, Haserick & Co., Inc.
P. O. Box 509, Framingham, Mass.

ATLANTA BRUSH ..... **Booth 420**
Atlanta Brush Co.
Box 1358, Atlanta 1, Ga.



Curtis & Marble will show the Model SL selvage shear for shuttleless loom fabrics.

BAHAN ..... **Booth 140**

Bahan Textile Machinery Co., Inc.
104 Hudson St., Greenville, S. C.

EXHIBITING: Loom parts.
PERSONNEL IN BOOTH:
W. L. Wilson, dist. rep.
J. A. Sammons, dist. rep.
C. L. Green, dist. rep.
C. Pickens, dist. rep.
W. H. Maulding, dist. rep.
L. O. Talley, dist. rep.
W. R. Rothrock, dist. rep.
RESIDING AT: Greenville Hotel and Colonial Court Motel.

BAHNSON ..... **Booth 830**

The Bahnson Co.
1001 S. Marshall St., Winston-Salem, N. C.

EXHIBITING FIRST TIME: A stationary ceiling cleaner which eliminates the necessity for a cleaner track, and so cuts installation and maintenance costs.
ALSO SHOWING: "Humiduct" air conditioning system; "Cross-Jet" traveling cleaner; "Vacu-Pak" floor sweeper; and "Open-Aire" creels.
PERSONNEL IN BOOTH:
A. H. Bahnson, Jr., pres.
A. E. Thomas, sales eng.
W. M. Fulp, export mgr.
I. L. Brown, sales eng.
R. B. Crosland, sales eng.
J. G. Browning, sales eng.
S. B. Blanton, sales eng.
W. F. Walters, sales eng.
RESIDING AT: Holiday Inn and Poinsett Hotel

BAKER ..... **Booth 834**

Baker Mfg. Co
Box 1195, Greenville, S. C.

EXHIBITING FIRST TIME: Triple lift mast fork lift truck, featuring freer lift, higher stacking, and shorter turning (manufactured by Baker Industrial Trucks Division, Otis Elevator Co.).
ALSO SHOWING: "Moto Truc," "Bamco" leather products, and "EZ-Lifts."
PERSONNEL IN BOOTH:
C. Baker, pres.
Mrs. C. Baker, vice-pres.
G. Blume, mgr., Charlotte
M. Dreitzler, div. mgr.
R. Sickman, sales eng.
RESIDING AT: Greenville Hotel

BAL ..... **Booth 838**

William Bal Corp.
947 Newark Ave., Elizabeth, N. J.

EXHIBITING FIRST TIME: Vulcanized fibre tote-conveyor box for transportation of materials on any type of conveyor system—roller, belt, or skate wheel.
ALSO SHOWING: Vulcanized fibre mill boxes, tote boxes, waste hampers, telescope cases, box trucks, open-side box trucks, drop-front box trucks, and doffing trucks.
PERSONNEL IN BOOTH:
N. Wilson, pres. H. E. Gill
RESIDING AT: Holiday Inn

BAND-IT ..... **Booth 321**

Band-It Co.
1734 Candler Bldg., Atlanta 3, Ga.

BARBER-COLMAN ..... **Booth 254**

Barber-Colman Co.
1300 Rock Street, Rockford, Ill.

EXHIBITING: Model 66 GSH (22H-6B) warp drawing machine, Model 56" MC portable warp tying machine with 56" MF warp frame, and Model 15" LC portable warp tying machine.
PERSONNEL IN BOOTH:
F. D. Taylor, Greenville off. mgr.

BASSICK ..... **Booth 411**

The Bassick Co.
3045 Fairfield Ave., Bridgeport, Conn.

BATSON ..... **Booth 223**

Batson Mfg. Co., Inc.
P. O. Box 1055, Greenville, S. C.

BENNINGER ..... **Booth 822**

Maschinenfabrik Benninger AG
Uzwil SG, Switzerland
(See THEILER)

BEST ..... **Booth 268**

Edward H. Best & Co.
210 Lincoln St., Boston 11, Mass.

EXHIBITING: Action model of rubber compressive shrinking belt; fabrics and felts used by the textile industry as machine parts.
PERSONNEL IN BOOTH:
B. Y. Yates, Jr., sales rep.
W. C. Hames, sales rep.
L. F. Kelley, treas.

BIRCH ..... **Booth 248**

Birch Brothers, Inc.
32 Kent St., Somerville 43, Mass.

EXHIBITING: Textile finishing machinery, cloth handling equipment, and mill sewing machines.
PERSONNEL IN BOOTH:
C. W. Birch, Jr., pres.
R. Briggs, vice-pres.
J. C. Cosby, sou. rep.

BIRDIE ..... **Booth 903-A**

Birdie Co.
Greenville, S. C.
(See FRONTIER)

BOOTH ..... **Booth 464**

Benjamin Booth Co.
Allegheny Ave. & Janney St., Philadelphia 34, Pa.

EXHIBITING FIRST TIME: A new line of card room machinery and supplies from Switzerland, including the "Orion" measuring device for determining eccentricity and for setting parallelism of various carding and grinding rolls, and flexible card clothing and card flats of special construction for specific applications; improvements in the Micr-O-Grind needlepoint grinding process and Supr-O-Tape condenser tape; a new licker-in grinding machine.
ALSO SHOWING: Complete line of super-precision metallic card clothing made by Graf of Switzerland, including a projection microscope display to show difference between milled and punched metallic clothing.
PERSONNEL IN BOOTH:
E. A. Snape, Jr., pres. R. Hurley
N. Bush H. Harrison
W. Gill C. Stover
W. Hurley E. Snape

BOSTON GEAR ..... **Booth 212**

Boston Gear Works
14 Hayward St., Quincy 71, Mass.
(See GREENVILLE TEXTILE)

BOSTON WOVEN HOSE ..... **Booth 102-A**

Boston Woven Hose & Rubber Co. Division
American Biltrite Rubber Co.
P. O. Box 1071, Boston 3, Mass.

EXHIBITING: "Boston Bull Dog" rub aprons; flat and V belting; industrial and fire hose.
PERSONNEL IN BOOTH:
A. E. Lyon, textile spec.
S. J. Clifford, dist. sales mgr.
W. A. Sheehan, regional sales mgr.
F. S. Coole, dist. sales mgr.
R. H. Sydnor, III, dist. sales mgr.
RESIDING AT: Holiday Inn

BOULIGNY ..... **Booth 474**

The Bouligny Co.
Division of R. H. Bouligny, Inc.
P. O. Box 10158, Charlotte 1, N. C.

BOWEN-HUNTER ..... **Booth 212**

Bowen-Hunter Bobbin Co.
East Corinth, Vt.
(See GREENVILLE TEXTILE)

BRAINERD STEEL ..... **Booth 477**

Brainerd Steel Division
Sharon Steel Corp.
Larchmont Ave., Warren, O.

BROWN & SHARPE ..... **Booth 264**

Brown & Sharpe Mfg. Co.
235 Promenade St., Providence, R. I.
(See LIVINGSTON & HAVEN)

BULLARD CLARK ..... **Booth 422**

The Bullard Clark Co.
35 School St., Danielson, Conn.
(See E. H. JACOBS)

BURLAP TUBING ..... **Booth 325**

Burlap Tubing Mfrs., Inc.
2719 N. Edgemont St., Philadelphia 34, Pa.

EXHIBITING: Laminated burlap carpet wraps; "Bur-Tex" adhesive; wire ties and automatic wire tie pullers; "Fit-Rite Bel-Tex" bias sewn burlap tubing.
PERSONNEL IN BOOTH:
A. Mackler, pres.
S. Mackler, 1st vice-pres.
T. D. Cook, Jr., sales rep.
C. P. Shoffner, sales rep.
H. Poole, sales rep.
RESIDING AT: Poinsett Hotel

BURLINGTON MILLS ..... **Booth 432**

Burlington Mills
Box 1319, Greensboro, N. C.
(See HOLT)

CABLE CARRIERS ..... **Booth 364**

Cable Carriers, Inc.
P. O. Box 2251, Greenville, S. C.

CAMERON & BARKLEY ..... **Booth 275**

Cameron & Barkley
P. O. Box 5532, Station B, Greenville, S. C.

CAROLINA BELTING ..... **Booth 217**

Carolina Belting Co.
19 Blair St., Greenville, S. C.

EXHIBITING: "Heart-of-Hide" box plate and binder leather, "Rusco" harness straps, check straps, "Hay" condenser tapes, "Hay" comb and gill box aprons.
PERSONNEL IN BOOTH:
C. T. Allen
E. Davis
W. R. Fox
J. E. Hay
C. F. Miller
E. W. Sargent
D. N. Van Dyke

CAROLINA BRUSH ..... **Booth 309**

Carolina Brush Co., Inc.
Box 3387, Charlotte, N. C.

CAROLINA FIBERGLASS ..... **Booth 335-A, 900**

Carolina Fiberglass Products Co.
P. O. Box 580, Wilson, N. C.

EXHIBITING: Dye trucks, batch containers, doff boxes, dye buckets, wet-goods boxes, and shuttle guards.
PERSONNEL IN BOOTH:
R. P. Watson, Jr., pres.
W. N. Conoley, exec. vice-pres.
RESIDING AT: TraveLodge Motel

CAROLINA RADIO ..... **Booth 328**

Carolina Radio Supply Co., Inc.
221 W. Washington St., Greenville, S. C.

EXHIBITING: Micro Switch products, RCA and Sylvania tubes, Porter & Brumfield relays, Ohmite and Dialco products.
PERSONNEL IN BOOTH:
R. Sutton, ind. sales mgr.
H. A. Miller, ind. sales

CAROLINA SUPPLY ..... **Booth 230**

Carolina Supply Co.
35 W. Court St., Greenville, S. C.

PERSONNEL IN BOOTH:
C. Mardre
B. Elletson
F. Casey
H. Stevenson
B. Verdin
J. Farrow
J. O. Crawford, Jr.
L. Garrett

A. B. CARTER ..... **Booth 124**

A. B. Carter, Inc.
226 Linwood St., Gastonia, N. C.

EXHIBITING: Boyce Knotters, spinning and twister travelers, "Phantom" drafting system.
PERSONNEL IN BOOTH:
J. K. Davis, sales eng.
D. E. Phillips, sales eng.
P. L. Piercy, sales eng.
P. R. Stroup, sales eng.
J. B. Carter, sales eng.
W. T. Horton, sales eng.
B. R. Link, sales eng.
J. R. Richie, sales eng.
E. H. Gregg, sec.
R. A. Haynes, sales eng.
RESIDING AT: Orvin Court

CEN-TENNIAL ..... **Booth 824**

Cen-Tennial Cotton Gin Co.
P. O. Box 708, Columbus, Ga.

CENTER CHEMICAL ..... **Booth 304**

Center Chemical Co.
166 Central Ave., Atlanta, Ga.

EXHIBITING FIRST TIME: Special floor sealers and finishes and specialized cleaners for the textile industry.
PERSONNEL IN BOOTH:
L. Ruff, sales rep.
N. Legend, sales eng.
S. Simms, sales eng.
B. Jones, sales eng.

CHANDLER ..... **Booth 359**

Chandler Machine Co.
West St., Ayer, Mass.

EXHIBITING: Power-operated swatch pinker, desk (portable) models of swatch pinking machines.
PERSONNEL IN BOOTH:
R. C. Maxant, sec.
T. Williams, sales mgr.

CHAVIS ..... **Booth 115-A**

Chavis Textile Sales Co.
920 N. Highland St., Gastonia, N. C.

EXHIBITING: Waxer guides, Franklin springs adaptors for tubing, Behr-Manning fillet, Johnson bronze bearings, Foster and Leesona machine parts.
PERSONNEL IN BOOTH:
J. B. Chavis
RESIDING AT: Catalina Motor Lodge

CHESTERTON ..... **Booth 228**

A. W. Chesterton
Everett, Mass.
(See SCHACHNER)

CHICAGO TRAMRAIL ..... **Booth 904**

Chicago Tramrail Corp.
1330 S. Kostner Ave., Chicago 23, Ill.

CLARK-CUTLER-McDERMOTT ..... **Booth 449**

Clark-Cutler-McDermott Co.
Franklin, Mass.
(See YEOMANS)

CLARK DOOR ..... **Booth 338**

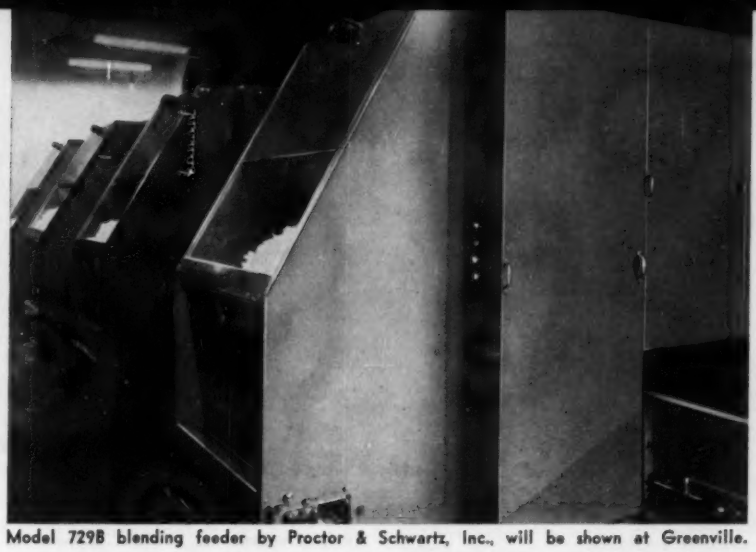
Clark Door Co.
515 Hunterdon St., Newark 8, N. J.

EXHIBITING FIRST TIME: Air operated double horizontal sliding door.
PERSONNEL IN BOOTH:
H. Clark, Jr., vice-pres.
E. A. Wiegleb, sales eng.
RESIDING AT: Orvin Court

CLARK EQUIPMENT ..... **Booth 475**

Clark Equipment Co.
Battle Creek, Mich.

EXHIBITING FIRST TIME: NR40 electric-powered narrow aisle reach truck, 4000-lb capacity; Baldwin-Clark



Model 729B blending feeder by Proctor & Schwartz, Inc., will be shown at Greenville.

Clark Equipment continued
weighing attachment for in-transit weighing of loads; "Clarklift" triple-stage upright for extra-high stacking.
ALSO SHOWING: C20P LP gas-powered fork truck, 2000-lb capacity; C30 LP gas-powered fork truck, 3000-lb capacity, with long-reach clamp; and 40P electric - powered, operator-led "Powrworker" pallet truck, 4000-lb capacity.
PERSONNEL IN BOOTH:
F. Lyne, SE dist. mgr
G. A. Markell, prod. mgr.
G. A. Christians, adv. & sales prom. mgr.

CLEMSON ..... **Booth 323-A**

Clemson College Textile School
Clemson, S. C.

CLEVELAND TRAMRAIL ..... **Booth 115-B**

Cleveland Tramrail
Division Cleveland Crane & Engineering Co.
Wickliffe, O.
(See ENGINEERING SALES)

CLINTON CORN ..... **Booth 205**

Clinton Corn Processing Co.
Clinton, Iowa

PERSONNEL IN BOOTH:
A. C. Junge, vice-pres.
R. C. Rau, gen. sales mgr.
C. F. Cline, sales mgr. sou. div.
G. Gilbert, sales
B. Looper, sales
C. W. Hite, sales
G. H. Henderson, sales
B. L. Estes, dist. mgr.
RESIDING AT: Poinsett Hotel

COATS & CLARK ..... **Booth 512**

Coats & Clark, Inc.
1292 McCarter Hwy., Newark, N. J.

EXHIBITING: Nylon twister travelers and metal-insert nylon travelers.
PERSONNEL IN BOOTH:
R. H. Wilcox, mgr. traveler div.
T. B. Farmer, sales eng.
M. H. Cranford, sales eng.
H. A. Carter, sales eng.
RESIDING AT: Wade Hampton Motel

COCKER ..... **Booth 836**

Cocker Machine & Foundry Co.
P. O. Box 431, Gastonia, N. C.

EXHIBITING: A new section beam warper and Model GH slasher.
PERSONNEL IN BOOTH:
J. Cocker, pres.
H. Cunningham, sales dept.
H. Kiser, sales eng.
J. Bodansky, vice-pres., sales mgr.
J. Etheredge, sales dept.
T. F. Suggs, chief eng.
O. Davis, sales dept.
E. F. Friday, erector
H. Scroggs, erector
RESIDING AT: Greenville Hotel

COLSON ..... **Booth 480**

The Colson Corp.
Elyria, O.
(See WRENN)

COMETSA ..... **Booth 908**

Cometsa Spindle Co.
Vergara, Spain
(See ROCK)

COMPRESSOR ..... **Booth 905-B**

The Compressor Corp. of America
P. O. Box 1934, Greenville, S. C.

CONTINENTAL-DIAMOND ..... **Booth 461**

Continental-Diamond Fibre Corp.
S. Chapel St., Newark, Del.

EXHIBITING: Roving cans, textile materials handling containers, loom parts, laminated and molded gears, and fabricated parts.
PERSONNEL IN BOOTH:
H. J. Coffey, dist. sales mgr.
H. Mayer, field sales mgr.
O. Thomas, adv. dept.
A. D. Gray, sales
G. W. Von Seth, sales
C. B. Haynes, sales
RESIDING AT: Poinsett Hotel

CONTINENTAL TAPES ..... **Booth 341**

Continental Tapes
Cayce, S. C.
(See GENERAL ENTERPRISES)

CORN PRODUCTS ..... **Booth 441**

Corn Product Sales Co.
17 Battery Place, New York 4, N. Y.

PERSONNEL IN BOOTH:
A. N. McFarlane
H. Plimpton
C. Spencer
A. A. Harden
J. T. Seawell
E. W. Beardsley
J. R. Hill
H. Harris
D. Jenkins
T. W. Blackwell
W. R. Joyner
P. A. Donaghy
J. A. Simpson
J. M. Adcock
G. O. Greene
E. G. King
G. E. Wood
H. M. Green

COTTON-McCAULEY ..... **Booth 828**

Cotton-McCauley & Co., Inc.
188 Main St., Pawtucket, R. I.

EXHIBITING: "Cleanguide" spinning drafting equipment, "Climax" ball bearing top rolls for spinning and roving, "Cleandraft" nylon top rolls, Whitehead bobbin holders, and Bijur automatic lubricating systems.
PERSONNEL IN BOOTH:
F. H. Cotton, pres.
R. L. McCauley, vice-pres.
R. K. Butler, gen. mgr.
J. B. Howarth, sales eng.
C. A. McAbee, sales eng.
RESIDING AT: Catalina Motor Lodge

CRABTREE ..... **Booth 339**

Crabtree Textile Accessories, Inc.
P. O. Box 5514, Station B, Greenville, S. C.

EXHIBITING: "Sintox" sintered alumina hard ceramic thread guides; tension devices of all kinds; wire guides and wire shapes; high-density polyethylene loom parts; textile package holders; textile bobbins and tubes, including a range of products in high-duty aluminum alloy, wood, paper, and plastic; pressure lubrication systems, "one-shot" and automatic; pneumatic

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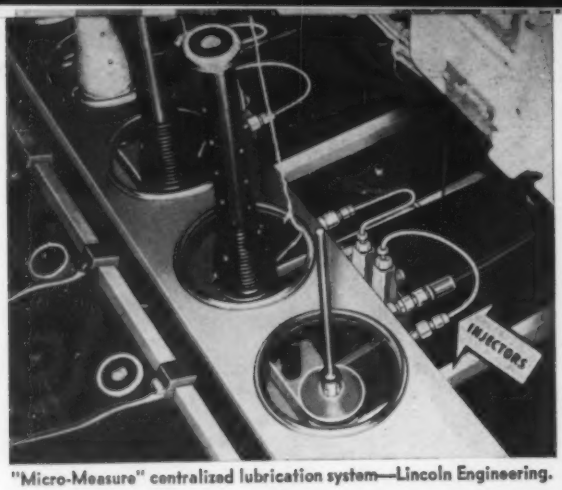
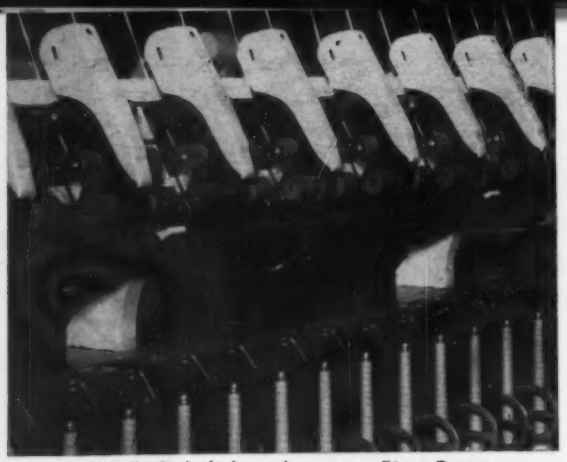


"Micro-Measure" centralized lubrication system—Lincoln Engineering.



Cavalla Roth drafting changeover—Dixon Corp.

Crabtree continued
equipment, cylinders, filter, etc.
PERSONNEL IN BOOTH:
G. A. Winterburn, gen. mgr.
P. Sommers, gen. mgr., UK plant
J. B. Ashworth, sales mgr., UK plant
RESIDING AT: Poinsett Hotel

CREAMERY ..... **Booth 127**
The Creamery Package Mfg. Co.
1243 W. Washington Blvd., Chicago 7, Ill.
EXHIBITING: Stainless rotary slasher pump in operation; various sizes of this pump will also be displayed.
PERSONNEL IN BOOTH:
F. S. Brumley, Atlanta branch mgr.
W. Harrod, rep.
W. J. Moore, special rep.
G. Willits, pump div.
C. E. Schick, sales mgr., textile div.
RESIDING AT: Poinsett Hotel

CROMPTON & KNOWLES ..... **Booth 139**
Crompton & Knowles Corp.
93 Grand St., Worcester 1, Mass.
EXHIBITING FIRST TIME: The C-7A loom, basically a C-7 loom with the necessary refinements to fulfill the need for a high-speed wide loom to weave medium- or light-weight worsted or blend suitings or other fabrics, such as upholsteries and draperies. The loom operating in the C & K booth will be 82" between swords, 25 harnesses, 15/32" gauge dobby (20 active harnesses), and 4 x 1 box.

CRONLAND ..... **Booth 106-A**
Cronland Warp Roll Co., Inc.
Lincolnton, N. C.
(See LEAGUE)

CROSS ..... **Booth 218**
Cross Sales & Engineering Co.
P. O. Box 794, Greensboro, N. C.

CROWN ..... **Booth 834**
Crown Co.
New Bremen, O.
(See BAKER MFG. CO.)

CURTIS & MARBLE ..... **Booth 235**
Curtis & Marble Machine Co.
72 Cambridge St., Worcester 3, Mass.
EXHIBITING: M-125 cloth folder for 50" goods; LCS-M-VS railway sewing machine (50" goods) for reinforced selvage seams; and the SL selvage shear, operating on goods woven on the Draper shuttleless loom.
PERSONNEL IN BOOTH:
W. F. Woodward, vice-pres., sales
J. Federline, sou. mgr.
J. Stanley, sou. rep.

DAILY NEWS RECORD ..... **Booth 210**
"Daily News Record"
7 E. 12th St., New York 3, N. Y.

DARNELL ..... **Booth 212**
Darnell Corp. Ltd.
12,000 Woodruff Ave., Downey, Calif.
(See GREENVILLE TEXTILE)

DART ..... **Booth 459**
Dart Union Co.
Providence 5, R. I.
(See FAIRBANKS)

DAVIS & FURBER ..... **Booth 476**
Davis & Furber Machine Co.
North Andover, Mass.

DAVISON ..... **E. Lounge**
Davison Publishing Co.
Ridgewood, N. J.

DAYCO ..... **Booth 136**
Dayco Textile Products Co.
401 S. C. National Bank Bldg., Greenville, S. C.
EXHIBITING: Cots, aprons, loom supplies, slasher rolls.
PERSONNEL IN BOOTH:
J. O. Cole — J. W. Brogden
T. W. Meighan — H. H. Pearson
W. L. Morgan — G. H. Newbern
B. A. Glenn — C. Dunn
E. L. Howell — I. B. Veazey
J. T. Edwards
RESIDING AT: Poinsett Hotel

DIKKERS ..... **Booth 128**
G. Dikkers & Co., NV
Industriestr. 15, Hengelo, Holland
(See WATSON & DESMOND)

DINSMORE ..... **Booth 234**
Dinsmore Mfg. Co.
Salem, Mass.
(See HOLLISTER-MORELAND)

DIXIE BEARINGS ..... **Booth 416**
Dixie Bearings, Inc.
276 Memorial Dr., S. W., Atlanta 3, Ga.
EXHIBITING FIRST TIME: Garlock "Teflon" bearings for die cast cap bar nebs and saddles.
ALSO SHOWING: Ball, roller, and thrust bearings; pillow blocks and flange units; nylon and Teflon "O" rings, oil seals, and retaining rings; Bunting bronze bars and bushings; OTC bearing tools.
PERSONNEL IN BOOTH:
E. F. Brown, vice-pres.
J. L. Lammers, Jr., dist. mgr.
J. M. Phelps
J. L. Disney
H. L. Cox
J. F. Rivers
RESIDING AT: Colonial Court Hotel

DIXIE BOBBIN ..... **Booth 432**
Dixie Bobbin Co.
Barre, Vt.
(See HOLT)

DIXON CORP. ..... **Booth 850**
Dixon Corp.
P. O. Drawer 7, Bristol, R. I.
EXHIBITING: "Cavalla Roth" drafting system, tension weighting, cots and aprons, two-apron "Shaw" drafting changeover, two-apron "ZDR" drafting changeover, "Casablancas TW Super" drafting changeover, and component parts for drafting changeovers.
PERSONNEL IN BOOTH:
R. R. Miller, pres.
W. R. Tabor, vice-pres. eng.
V. Pierannunzi, vice-pres. prod.
M. C. Kenna, plant mgr.
E. Hett, sales
V. Collette, sales
H. Hurt, sales
A. Cavallaro, sales

JOSEPH DIXON ..... **Booth 332**
The Joseph Dixon Crucible Co.
167 Wayne St., Jersey City 3, N. J.
EXHIBITING: "Wash-A-Way" cloth marking pencils No. 780, Empire textile mill crayons.
PERSONNEL IN BOOTH:
G. McChesney, rep.
RESIDING AT: Poinsett Hotel

DOCKERY ..... **Booth 311**
Dockery Mfg. Co.
P. O. Box 87, Rockingham, N. C.

DODGE ..... **Booth 403**
Dodge Mfg. Corp.
S. Union St., Mishawaka, Ind.
EXHIBITING FIRST TIME: "Dyna-V" V-belt drives—sheaves are smaller, lighter and less expensive than wide-groove sheaves, and V-belts offer higher load capacity at lower cost.
ALSO SHOWING: "Flexidyne" dry fluid drives and couplings, individual card drives with "Flexidyne," "Para-Flex" flexible cushion couplings, torque-arm speed reducers, taper-lock chain drives, taper-lock V-belt drives, variable-pitch sheaves, mounted industrial bearings (tapered roller, spherical roller, ball bearing, and sleeve bearing).
PERSONNEL IN BOOTH:
P. Keb, dist. sales mgr.
J. Stroobandt, sales rep.
R. Barker, dist. sales mgr.
R. Hanes, dir. of adv.
RESIDING AT: Cabana Inn Motor Motel

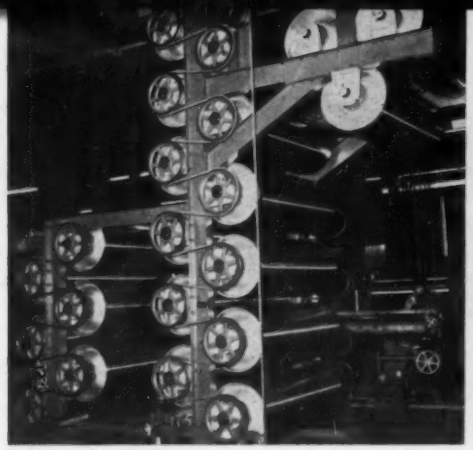
DORRIS ..... **Booth 429**
George P. Dorris Co.
6108 Clemens Ave., St. Louis, Mo.
(See VALENTINE)

DRAPER ..... **Booth 132**
Draper Corp.
Hopedale, Mass.
EXHIBITING: Two DSL shuttleless looms; one, a 46" model, will be operated at slow speeds to permit close examination of its working parts and mechanisms. The second will be operated at a speed of 250 ppm and will be weaving a sports denim fabric, a 3-harness, 2/1 1h-twill weave. Repair parts and mechanisms, weaving accessories, and malleable iron castings will also be shown.

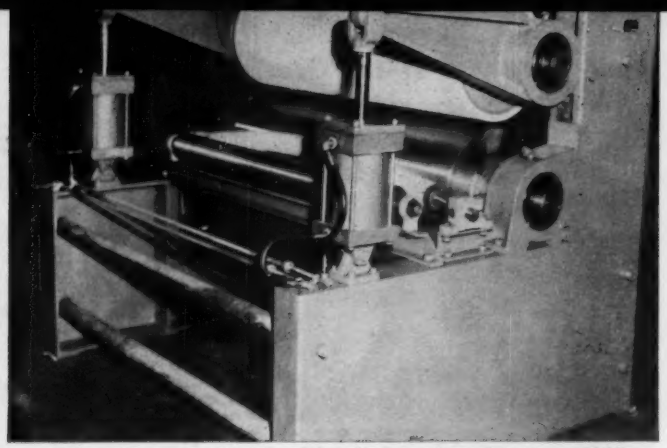
DURANT ..... **Booth 903**
Durant Mfg. Co.
1973 N. Buffum St., Milwaukee 1, Wis.
(See SNYDER)

EATON ..... **Booth 506**
Eaton Mfg. Co.
Cleveland Worm & Gear Div.,
3249 E. 80th St., Cleveland 4, O.,
Dynamatic Div., 3122 14th Ave. Kenosha, Wis.
(See ELECTRO MOTION)

ECLIPSE ..... **Booth 212**
Eclipse Machine Div.
Bendix Aviation Corp.,
Elmira, N. Y.
(See GREENVILLE TEXTILE)



Drying and cooling range . . . . . .



. . . and padder are in West Point Foundry's new line of finishing machinery.

ECONOMY ..... **Booth 905**

Economy Textiles, Inc.
Gastonia, N. C.
(See RUDNICK)

EDDA ..... **Booth 129**

Edda International Corp.
468 Fourth Ave., New York 16, N. Y.

EXHIBITING: "Titan" warp-tying machine, "Excelsior" reed cleaning and polishing machine, "Maxbo" shuttleless loom, "Henriksen" line of dyeing and finishing machinery, and loom supplies.
PERSONNEL IN BOOTH:
B. Gudjonsson — R. J. Farr
H. A. Nagel — E. L. Pullen
RESIDING AT: Calhoun Towers

ELECTRO ..... **Booth 506**

Electro-Mechanical Engineering Co. and Electro Motion Corp.
P. O. Box 10432, Charlotte, N. C.

EXHIBITING: Electrically controlled brakes and clutches, eddy-current "Ajusto-Spede" drives, speed reducers, speed variators, centralized lubrication systems, and electrically controlled slubbing devices.
PERSONNEL IN BOOTH:
J. G. Swinney, pres.
F. M. Cureton, salesman
J. Hopkins, salesman
R. E. Bray, salesman
RESIDING AT: Poinsett Hotel and Wade Hampton Motel

ENGINEERED PLASTICS ..... **Booth 846**

Engineered Plastics, Inc.
Gibsonville, N. C.

ENGINEERING SALES ..... **Booth 115-B**

Engineering Sales Co. of Charlotte
P. O. Box 68, Charlotte, N. C.

EQUIPTO ..... **Booth 305**

Equipto Division
Aurora Equipment Co.
401 S. Highland, Aurora, Ill.

EXHIBITING: Steel shelving, drawer units, work benches, slotted angles.
PERSONNEL IN BOOTH:
P. Streit, dir. of sales
R. L. Logan, dist. dir. of sales
D. Mader, mgr. slotted angle div.
RESIDING AT: Holiday Inn

ESSO ..... **Booth 472**

Esso Standard
Division of Humble Oil & Refining Co.
15 W. 51st St., New York 19, N. Y.

EXACT WEIGHT ..... **Booth 208**

The Exact Weight Scale Co.
538 E. Town St., Columbus 15, O.

EXHIBITING: Scales and weighing equipment for production and quality control.
PERSONNEL IN BOOTH:
J. M. Orta, Carolinas rep.

EXCEL ..... **Booth 233**

Excel, Inc.
509 Lee Ave., Lincolnton, N. C.

EXHIBITING: Materials handling equipment.
PERSONNEL IN BOOTH:
N. W. Eurey, vice-pres.

Excel continued
P. Eurey, vice-pres.
E. E. Eurey, rep. & field eng.
RESIDING AT: Greenville Hotel

EXTREMULTUS ..... **Booth 126**

Extremultus, Inc.
25-11 40th Ave., Long Island City 1, N. Y.

EXHIBITING FIRST TIME: Power-transmission belt with polyurethane surface, for application on high-speed twisters.
ALSO SHOWING: Nylon power-transmission belts for cotton and wool cards, roving frames, twisters, and other textile machinery.
PERSONNEL IN BOOTH:
K. Tsunoda, pres.
G. L. Pellicer, vice-pres.
C. G. Rivers, sales mgr.
RESIDING AT: Poinsett Hotel

FAIRBANKS ..... **Booth 459**

The Fairbanks Co.
393 Lafayette St., New York 3, N. Y.

EXHIBITING FIRST TIME: Textile casters with new thread guards.
ALSO SHOWING: Casters and wheels; two-wheel and platform hand trucks; bronze and iron body valves; dart unions.
PERSONNEL IN BOOTH:
J. L. Ragland, sou. br. mgr.
J. A. Bailey, salesman
L. L. Bogle, II, salesman
A. T. Giles, salesman
J. T. Chandler, salesman
J. R. Shattles, Sr., salesman
P. M. Fallon, adv. mgr.
RESIDING AT: Holiday Inn

FAIRBANKS, MORSE ..... **Booth 459**

Fairbanks, Morse & Co.
600 Michigan Ave., Chicago 5, Ill.
(See FAIRBANKS)

FAULTLESS ..... **Booth 473**

Faultless Caster Corp.
1421 N. Garvin St., Evansville 7, Ind.

EXHIBITING FIRST TIME: New thread guard caster No. 507-4BTG.
ALSO SHOWING: Eight series of textile casters (both rigid-plate and swivel-plate) with wheels ranging in diameter from 3.5" to 8" and load capacities of 60 to 750 pounds.
PERSONNEL IN BOOTH:
H. R. Watters, mkt. res. dir.
G. T. McLeod, sales rep.
W. Burdette, Greenville office
T. J. Bromeling, sales rep.
J. Couch, sales rep.
RESIDING AT: Poinsett Hotel

FEDERAL PACIFIC ..... **Booth 108**

Federal Pacific Electric Co.
5745 Peachtree Industrial Blvd., Chamblee, Ga.

FELTERS ..... **Booth 349**

The Felters Co.
210 South St., Boston 16, Mass.

EXHIBITING FIRST TIME: Pre-coat line of Unisorb Level-Rite mounts.
ALSO SHOWING: Unisorb mounting pads.
PERSONNEL IN BOOTH:
P. W. Wheeler, sales mgr., eng. prod. div.
W. C. Henry, supv. Unisorb div.
RESIDING AT: Ottaray Hotel

FENWAL ..... **Booth 426**

Fenwal, Inc.
Pleasant St. Ashland, Mass.
(See HILE)

FINNELL ..... **Booth 110**

Finnell Systems, Inc.
500 East St., Elkhart, Ind.

FISHER ..... **Booth 314**

Fisher Mfg. Co., Inc.
Hartwell, Ga.

EXHIBITING: Units at winders, spoolers, and Roto-Coners. Warp handling equipment.
PERSONNEL IN BOOTH:
J. G. Fisher, pres.
R. M. Matthews, vice-pres.
J. N. Fisher, vice-pres.
C. A. Matthews, sales rep.
N. Houston, sales rep.
J. W. Davis, sales rep.
J. C. Long, sales rep.

FLETCHER ..... **Booth 807**

Fletcher Industries
Hasbrook Ave., and Beecher St., Cheltenham, Pa.

EXHIBITING FIRST TIME: The 1960 high-speed all-purpose elastic web loom that can be converted from elastic to nonelastic goods in a few hours. Operates from 250 to 300 ppm.
ALSO SHOWING: The 5-foot "Power-Fab" high speed webbing loom; Master duplex doubler twister; Jumbo duplex twister.
PERSONNEL IN BOOTH:
E. T. Taws, pres.
E. T. Taws, Jr., pres., Fletcher Southern
F. S. Claghorn, vice-pres., Fletcher Ind.
E. Stowell, sales mgr.
B. Roessell, chief field eng.
C. Mancke, chief eng.

FOSTER ..... **Booth 827**

Foster Machine Co.
Westfield, Mass.

EXHIBITING FIRST TIME: The Lindly Series 1000 Ultra Yarn Inspector and Series 600 Multicontrol units.
ALSO SHOWING: Lindly Electrotense tension and the Dyna-Micro-Gage.
PERSONNEL IN BOOTH:
E. C. Connor, pres.
C. H. Amidon, chief eng.
P. H. Farmer, sales mgr.
E. P. Dodge, sou. mgr.
E. H. Ely, sales
H. Hornbuckle, sales
G. W. Mallory, sales
H. Lindemann, pres., Lindly
V. Mateka, vice-pres., Lindly
C. P. Elgin, eng., Lindly
RESIDING AT: Poinsett Hotel

FOULDS ..... **Booth 227**

I. Foulds & Sons, Inc.
Hudson, Mass.
(See HURLEY & HARRISON)

FOXBORO ..... **Booth 405**

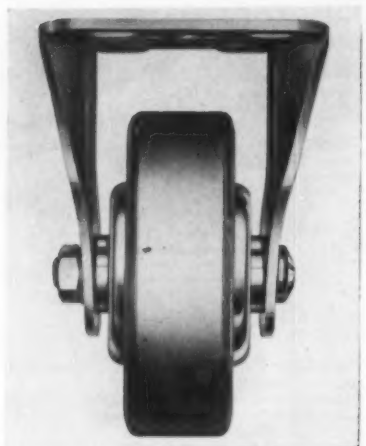
The Foxboro Co.
Foxboro, Mass.

EXHIBITING: A new system of program control that enables a mill to program the operation of many of its batch processes; Model C-HCR cycle-log controller that permits entire dyeing cycle to be carried out automati-

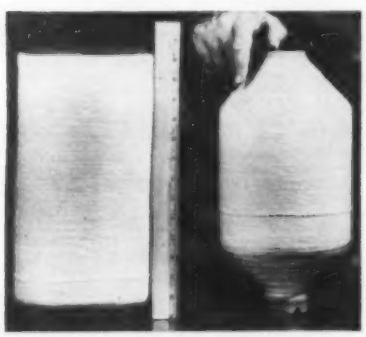
Continued next page

What you'll see at the Greenville Show

"Alley-Skat" can dolly—Southern Skates Equipment Corp.



New thread guard textile caster will be shown by Faultless Caster Corp.



"Spobbin" by Akron Spool & Mfg. Co. is a reworked roving bobbin with a spool head.

Epoxy resin junction box mount will be shown by Permacel.

Foxboro continued

cally: Type 16A pneumatic speed transmitter for maintaining desired stretch; and the Model 44B relative humidity transmitter for remote measurement or control.
PERSONNEL IN BOOTH:
T. A. Jones, eng.
E. R. Tims, eng.
S. C. Alexander, eng.
W. B. Digby, eng.
R. M. Glass, eng.
W. H. Ridley, eng.

FRONTIER ..... **Booth 903-A**
Frontier Electronics, Inc.
P. O. Box 625, Greenville, S. C.

FULLER ..... **Booth 264**
Fuller Co.
Catasauqua, Pa.
(See LIVINGSTON & HAVEN)

GAI-TRONICS ..... **Booth 354**
Gai-Tronics Corp.
Reading, Pa.
(See GAULT)

GARLAND ..... **Booth 106**
Garland Mfg. Co.
46 Water St., Saco, Me.
EXHIBITING FIRST TIME: Plastic lug straps and sweepsticks, and other plastic loom accessories.
ALSO SHOWING: Plastic and rawhide pickers, and leather loom accessories.
PERSONNEL IN BOOTH:
H. P. Garland, 2nd., pres.
F. L. O'Neil, Sr.
F. L. O'Neil, Jr.

GASTON COUNTY ..... **Booth 802**
Gaston County Dyeing Machine Co.
Stanley, N. C.
EXHIBITING: Laboratory wet finishing and dyeing equipment.
PERSONNEL IN BOOTH:
W. Newcomb, salesman
R. Craig, vice-pres.
G. Hacker, vice-pres. and gen. mgr.
G. H. Hacker, vice-pres. and sales mgr.
R. Angel, salesman
RESIDING AT: Poinsett Hotel

GATES ..... **Booth 443**
The Gates Rubber Co.
999 S. Broadway, Denver 17, Colo.

GAULT ..... **Booth 354**
P. C. Gault Co.
25 W. Faris Rd., Greenville, S. C.
EXHIBITING FIRST TIME: The transistorized paging equipment of Gai-Tronics Corp.
ALSO SHOWING: Automatic dial telephone system manufactured by Kellogg Switchboard & Supply Co., handling from 2 to 200 lines; industrial sound equipment; music, paging, and locating systems for textile plants.
PERSONNEL IN BOOTH:
P. C. Gault, pres.
J. E. Marshall, svc. mgr.
H. C. Lord, Jr., salesman

GENERAL BOX ..... **Booth 308**
General Box Co.
1825 Miner St., Des Plaines, Ill.

GENERAL ELECTRIC ..... **Booth 116**
General Electric Co.
Apparatus Division,
4 Sarnowski Dr., Schenectady 2, N. Y.; Large Lamp Dept., Nela Park, Cleveland, O.

GENERAL ENTERPRISES ..... **Booth 341**
General Enterprises, Inc.
P. O. Box 3274, Greenville, S. C.
EXHIBITING FIRST TIME: Equipment for ultrasonic cleaning of parts and subassemblies, manufactured by National Ultrasonic Corp.
ALSO SHOWING: Oils and greases by Ore-Lube Corp.; masking tapes by Continental Tapes.
PERSONNEL IN BOOTH:
C. G. Hinkle, pres.
J. J. Silverstein, ch. eng., Ore-Lube
G. Fant, Jr., vice-pres., sales, Continental Tapes
RESIDING AT: Wade Hampton Motel

GEORGIA-CAROLINA ..... **Booth 113**
Georgia-Carolina Oil Co.
Box 101, Macon, Ga.

GILMAN PAINT ..... **Booth 446**
Gilman Paint & Varnish Co.
517 Market St., Chattanooga, Tenn.
(See OLNEY)

GLOBE CO. ..... **Booth 115-B**
Globe Co.
4022 S. Princeton Ave., Chicago 9, Ill.
(See ENGINEERING SALES CO.)

GLOBE GEAR ..... **Booth 903**
Globe Gear Co.
3330 W. Clearfield St., Philadelphia, Pa.
(See SNYDER)

GLOVER ..... **Booth 432**
Glover Wood Turning Co., Inc.
West Millbury, Mass.
(See HOLT)

GOLDENS' FOUNDRY ..... **Booth 219**
Goldens' Foundry & Machine Co., Inc.
P. O. Box 96, Columbus, Ga.
EXHIBITING FIRST TIME: Streamlined "HC" 3V-5V-8V drives.
ALSO SHOWING: Ball bearing applications, cast iron and ductile castings.
PERSONNEL IN BOOTH:
J. L. Grantham, eng.
J. Asselin, eng.
R. K. Ballard, sales
J. Kibby, sales

GOODYEAR ..... **Booth 834**
Goodyear Tire & Rubber Co.
Akron 16, O.
(See BAKER)

GRAF ..... **Booth 227**
Graf & Co.
Rapperswill SG, Switzerland
(See HURLEY & HARRISON)

GRATON & KNIGHT ..... **Booth 507**
Graton & Knight Co.
356 Franklin St., Worcester 4, Mass.
EXHIBITING: Textile leathers and allied items.
PERSONNEL IN BOOTH:
J. G. Henrikson, sales mgr.
W. M. Wills, sales rep.
E. G. Sinclair, sou. sales mgr.

GREAT AMERICAN ..... **Booth 106-A**
Great American Industries, Inc.
Rubatex Division, Bedford, Va.
(See LEAGUE)

GREENVILLE TEXTILE ..... **Booth 212**
Greenville Textile Supply Co.
504 Rhett St., Greenville, S. C.

GRIFFIN ..... **Booth 501**
Ira L. Griffin & Sons
P. O. Box 10474, Charlotte 1, N. C.

GULF ..... **Booth 211**
Gulf Oil Corp.
Gulf Bldg., Houston 1, Texas
EXHIBITING: "Gulfspin" spindle oil, "Gulfcrown" grease, and "Harmony" oil.
PERSONNEL IN BOOTH:
O. K. Weatherwax, marketer-direct sales
J. H. Hooten, supv.-prod. appl.
J. E. Coleman, prod. appl. eng.
H. B. Minick, Jr., sales eng.
S. E. Owen, Jr., sales eng.
C. T. Timmons, sales eng.
A. J. Borders, sales eng.
J. A. Lanier, sales eng.
R. G. Burkhalter, Jr., sales eng.
RESIDING AT: Poinsett Hotel

H & P ..... **Booth 128**
H & P Spool & Bobbin Co.
185 Canal St., Lawrence, Mass.
(See WATSON & DESMOND)

HARNISCH ..... **Booth 120**
Harnisch Fabrik fur Textilbedarf
Kirchheim-Teck, Germany
(See LENKOTEX)

HATCHER ..... **Booth 467**
Hatcher Sales Co., Inc.
543 Forrest Rd. NE, Atlanta 12, Ga.

HAYES ..... **Booth 433**
Hayes Industries, Inc.
437 Fern Ave., Jackson, Mich.

HEANY ..... **Booth 514**
Heany Industrial Ceramic Corp.
P. O. Box 530, New Haven 3, Conn.

HERR ..... **Booth 267**
Herr Mfg. Co., Inc.
318 Franklin St., Buffalo 2, N. Y.

EXHIBITING FIRST TIME: Latest Type M conical ring.
ALSO SHOWING: Herr uptwister flyers to accommodate all types of yarns.
PERSONNEL IN BOOTH:
H. B. Atwood, pres.
R. M. Leach, tech. eng.
W. W. Woodard, tech. eng.
J. McLean, eng.
W. K. Anderson, Jr.

HILE ..... **Booth 426**
W. K. Hile Co., Inc.
1236 E. Morehead St., Charlotte 7, N. C.

EXHIBITING FIRST TIME: Fenwal 500 Series electronic temperature controllers and indicators.
ALSO SHOWING: Fenwal electric temperature controls; Hotwatt electric heating elements; and Instruments, Inc., electric and pneumatic lever controls.
PERSONNEL IN BOOTH:
W. K. Hiles, sales eng.
G. M. Lupo, sales eng.
C. P. Maloney, sales eng.
K. Ball, sales mgr., Instruments, Inc.
RESIDING AT: Poinsett Hotel

HILL ..... **Booth 358**
Hill Mfg. Co.
1500 Jonesboro Rd., Atlanta 15, Ga.

HILLIARD ..... **Booth 903**
The Hilliard Corp.
100 W. 4th St., Elmira, N. Y.
(See SNYDER)

HOLLISTER-MORELAND ..... **Booth 234**
Hollister-Moreland Co., Inc.
1455 Asheville Hwy., Spartanburg, S. C.

EXHIBITING: Style M automatic oil feeding Merrow machines including the recently developed Style M-4D-45 machine for toe seaming; totally enclosed Amco motors with E-Z Flo legs and Tek Matic thread trimming machine; Dinsmore multiple stitch raillway.
PERSONNEL IN BOOTH:
R. B. Moreland, pres.
O. S. Bachelor, vice-pres.
J. B. Moreland, secty.
L. C. Burris, sales rep.
R. M. Jenkins, sales rep.
J. M. Washburn, eng.
W. M. Baker
R. Pettit
RESIDING AT: Poinsett Hotel and Catalina Motor Lodge

HOLT ..... **Booth 432**
Holt Associates, Inc.
1910 East Wendover Ave., Greensboro, N. C.

EXHIBITING: Australian opossum shuttle fur; sheepskin textile accessories; dobby cords, lug straps, pattern chain bars; sheaves; picker sticks; sweepsticks; binders; skewers; loom bobbins; warp spinning bobbins; Gee Wee plastic pickers and sweepsticks; roving bobbins; nylon spinning tape; and nylon twister tape.
PERSONNEL IN BOOTH:
J. G. Skinner, pres.
D. R. Sellars, exec. vice-pres.
J. P. Norman, vice-pres.
W. H. Huff, sales rep.
C. H. Crumpton, sales rep.
W. W. West, sales rep.
C. M. Dunn, sales rep.
RESIDING AT: Wade Hampton Motel

HOTWATT ..... **Booth 426**
Hotwatt, Inc.
Danvers, Mass.
(See HILE)

HOWARD ..... **Booth 252**
Howard Bros. Mfg. Co.
44-46 Vine St., Worcester, Mass.

HOWE ..... **Booth 448**
The Howe Scale Co.
2951 Scale Ave., Rutland, Vt.

HUBINGER ..... **Booth 501**
The Hubinger Co.
601 Main St., Keokuk, Iowa
(See GRIFFIN)

Hubinger continued

EXHIBITING: OK brand pearl starch, starch No. 173, thin boiling starches, and waxy film XLT.
PERSONNEL IN BOOTH:
R. Underwood, bulk sales mgr.
I. L. Griffin, Jr. J. Myers
G. Orr C. Merritt
RESIDING AT: Poinsett Hotel

HUNTER ..... **Booth 465, 824**
James Hunter, Inc.
Hunter Controls, Inc.
Mauldin, S. C.

EXHIBITING FIRST TIME: Multi-Tuft bale blender
PERSONNEL IN BOOTH:
J. Hunter, pres.
R. Hunter, sec. & treas.
W. F. Leineweber, vice-pres. & gen. mgr.
L. V. Neese, sales rep.
W. B. Estes, svc. mgr.
E. Connelly, eng.
A. V. Moody, sales mgr.
H. A. Brown, Jr., sales rep.
L. Girard, sales rep.
D. B. Powers, eng.
H. Creegan, sales mgr., J. Hunter Mach. Co.
R. Plumb, sales mgr., J. Hunter Mach. Co.

HURLEY & HARRISON ..... **Booth 227**
Hurley & Harrison, Inc.
23 W. Faris Rd., Greenville, S. C.

EXHIBITING FIRST TIME: Graf metallic card clothing
ALSO SHOWING: Spools and bobbins; all types of card clothing; nylon core belting; plastic pickers; lug straps; sweep sticks; transmission belting, and pneumatic roll pickers.
PERSONNEL IN BOOTH:
W. F. Hurley R. C. Hurley
H. W. Harrison

HYATT ..... **Booth 104**
Hyatt Bearings Div.,
General Motors Corp.
Harrison, N. J.

EXHIBITING: A complete line of antifriction bearings for all kinds of textile machinery.
PERSONNEL IN BOOTH:
G. B. Baxley, sales eng.
E. P. O'Neill, sales mgr.—Harrison zone
E. W. Maurushat, div. mgr.
C. C. Wardell, adv. mgr.
RESIDING AT: Poinsett Hotel

HYSTER ..... **Booth 480**
Hyster Co.
Danville, Ill.
(See WRENN)

IDEAL ..... **Booth 239**
Ideal Industries, Inc.
Bessemer City, N. C.

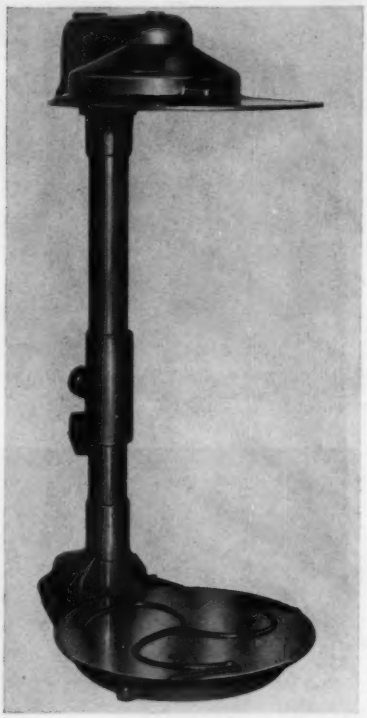
EXHIBITING FIRST TIME: Two-delivery drawing frame, 18" X 42" cans, operating at 750 fpm.
ALSO SHOWING: Coiling systems, spindles and flyers, bolsters, steps, lap pins, and lifting rods.
PERSONNEL IN BOOTH:
J. R. Whitehurst, sec.
A. S. Roebuck, sales mgr.
C. E. Conner, asst. sales mgr.
F. B. McDonald, salesman
E. S. Livingston, salesman
W. L. Whitley, salesman
J. Rayfield, salesman
B. Hoyle, salesman
RESIDING AT: University Park Motel

ILG ..... **Booth 241**
Ilg Electric Ventilating Co.
2850 N. Pulaski Rd., Chicago 41, Ill.
(See CHET ADAMS)

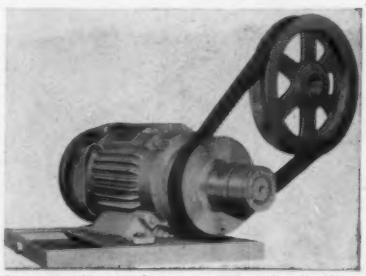
EXHIBITING FIRST TIME: Type UB upblast power roof ventilators, Type IF industrial fan, textile-type unit heater, Type TA tubeaxial fan, and Type PF square panel fan.
PERSONNEL IN BOOTH:
J. J. Friedler, Jr., vice-pres.
C. Z. Adams, mgr., Greensboro
W. T. Foreman, sales eng.
F. H. Bigelow, dist. mgr., Atlanta
W. B. Britton, mgr., Norfolk
J. H. Johnson, mgr., Raleigh
RESIDING AT: Poinsett Hotel

INDUSTRIAL COATINGS ..... **Booth 214**
Industrial Coatings, Inc.
104 S. Hudson St., Greenville, S. C.

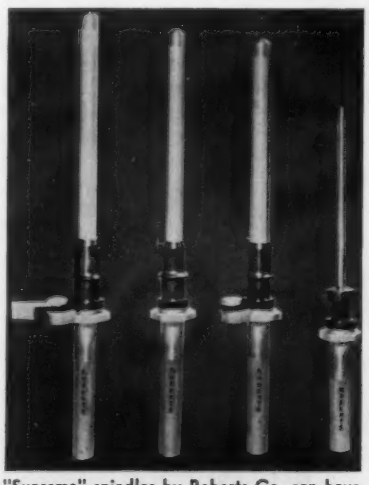
EXHIBITING: "Teflon"-coated items for the textile industry.
PERSONNEL IN BOOTH:
H. E. Russell, mgr.



Southern States Equipment Corp. will exhibit complete 24" coiler.

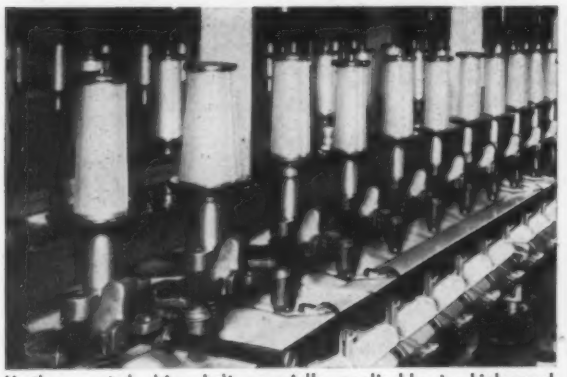


Reeves will introduce new "Vari-Spin" drive.

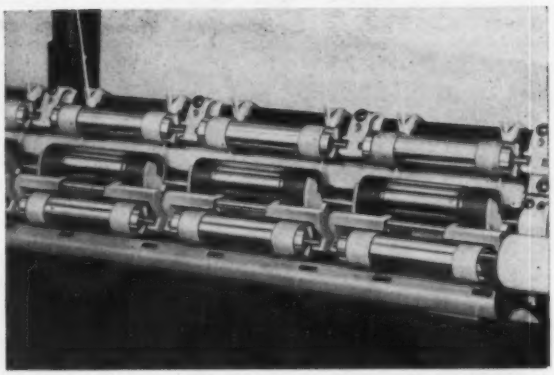


"Supreme" spindles by Roberts Co. can have cam brakes attached originally or later.

What you'll see at the Greenville Show

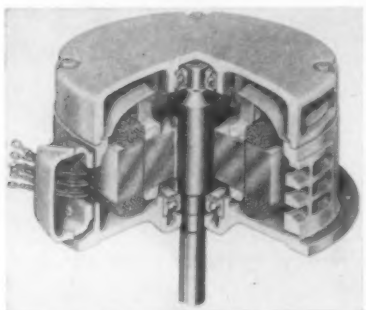


Urethane-coated drive belt especially applicable to high-speed twisters—Extremultus, Inc.



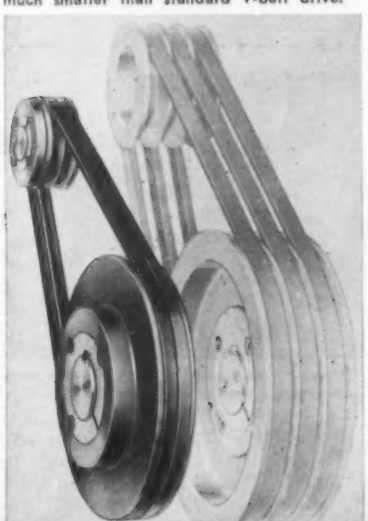
Saco-Lowell Shops will show the latest version of the MagneDraft spinning changeover.

Baldwin-Clark weighing attachment makes it possible to weigh loads accurately (arrow) right on the forks of a lift truck.



Pancake motor by Louis Allis Co.

"Dyna-V" drive of Dodge Mfg. Corp. is the much smaller than standard V-belt drive.



INDUSTRIAL DRYER ..... **Booth 466**
The Industrial Dryer Corp.
432 Fairfield Ave., Stamford, Conn.
EXHIBITING: "H-W" conditioner, for twist setting and regain.
PERSONNEL IN BOOTH:
P. H. Friend, sou. sales mgr.
F. W. Caesar, vice-pres.

INSTRUMENTS ..... **Booth 426**
Instruments, Inc.
122 N. Madison Ave., Tulsa, Okla.
(See HILE)

INTER-CON-TEX ..... **Booth 432**
Inter-Con-Tex Import Co.
855 Avenue of the Americas, New York, N. Y.
(See HOLT)

IBM ..... **Booth 460**
International Business Machines Corp.
590 Madison Ave., New York 22, N. Y.

ICS ..... **Booth 336**
International Correspondence Schools
Oak and Pawnee Sts., Scranton 15, Pa.
EXHIBITING: Texts and other training materials for the textile and allied fields.
PERSONNEL IN BOOTH:
W. F. Eckard, supt., Columbia div.
R. Gagnon, dir., School of Textiles

INDUSTRIAS TEXTILES ..... **Booth 408**
"Industrias Textiles"
Apartado 2988, San Jose, Costa Rica
(See TEXTILE INDUSTRIES)

JACOBS BROTHERS ..... **Booth 334**
Jacobs Brothers
14 Carolina Ave., Clinton, S. C.
EXHIBITING: Printing for textile mills.
PERSONNEL IN BOOTH:
H. Jacobs W. Jacobs

E. H. JACOBS ..... **Booth 422**
E. H. Jacobs
P. O. Box 3096, Charlotte 3, N. C.
EXHIBITING: Complete line of loom supplies of canvas, rubber, plastic, wood, and leather.
PERSONNEL IN BOOTH:
W. R. Muller, pres.
C. W. Cain, vice-pres.
L. L. Froneberger, vice-pres.
R. M. Briggs, svc. eng.
D. H. Stansell, svc. eng.
F. W. Beaver, svc. eng.
S. B. Henderson, svc. eng.
RESIDING AT: Wade Hampton Motel

JAMESBURY ..... **Booth 483**
Jamesbury Corp.
45 New St., Worcester, Mass.

JENKINS BROS. ..... **Booth 453**
Jenkins Bros.
100 Park Ave., New York 17, N. Y.
EXHIBITING: Bronze, iron, cast steel, and stainless steel valves.
PERSONNEL IN BOOTH:
E. C. Barrett, mgr., Atlanta
W. A. Snellgrove, asst. mgr., Atlanta
E. L. Dean, rep. S. L. Hubbs, rep.
RESIDING AT: Poinsett Hotel

JENKINS METAL ..... **Booth 838**
Jenkins Metal Shops, Inc.
1160 N. Marietta St., Gastonia, N. C.

JOHNSON CORP. ..... **Booth 437**
The Johnson Corp.
805 Wood St., Three Rivers, Mich.
EXHIBITING: Complete line of rotary pressure joints, including operating models; solenoid-operated valves; instant steam water heater; compressed air separators and aftercoolers.
PERSONNEL IN BOOTH:
R. Gotschall, vice-pres., sales
J. Dal Ponte, reg. sales mgr.
RESIDING AT: Poinsett Hotel

S. C. JOHNSON ..... **Booth 307**
S. C. Johnson & Son, Inc.
1525 Howe St., Racine, Wis.
EXHIBITING FIRST TIME: "Forward" all-purpose cleaner, "Step - Ahead" polymer finish, "Super Shur-Tred" buffable polymer finish, and "Wax-Strip" floor cleaner and wax remover.
ALSO SHOWING: "Red Label" gym finish and "Traffic-Cote" penetrating sealer.
PERSONNEL IN BOOTH:
J. F. Nieman, SE dist. mgr., ser. prod. div.

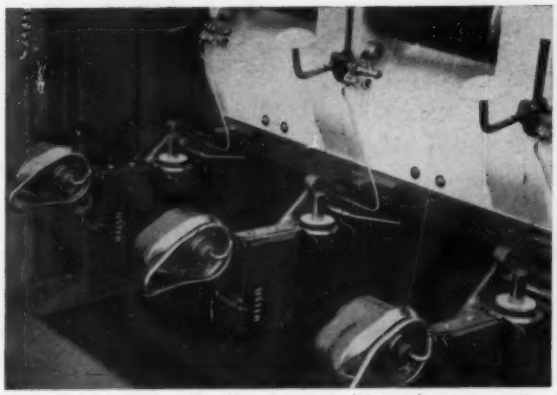
KANEGAFUCHI ..... **Booth 905**
Kanegafuchi Machine Co.
Osaka, Japan
(See RUDNICK)

KEEVER ..... **Booth 407**
The Keever Starch Co.
538 East Town St., Columbus 15, Ohio
PERSONNEL IN BOOTH:
C. C. Switzer, vice-pres.
J. F. Kurtz, pres.
R. L. High, dir. of research
F. M. Wallace, asst. mgr.
R. H. Cates, Jr., chemist
R. F. Guill, rep.
E. T. Hackworth, rep.
S. S. Rice, Jr., rep.
C. B. Phillips, rep.
T. S. Richbourg, rep.
RESIDING AT: Poinsett Hotel and Greenville Hotel

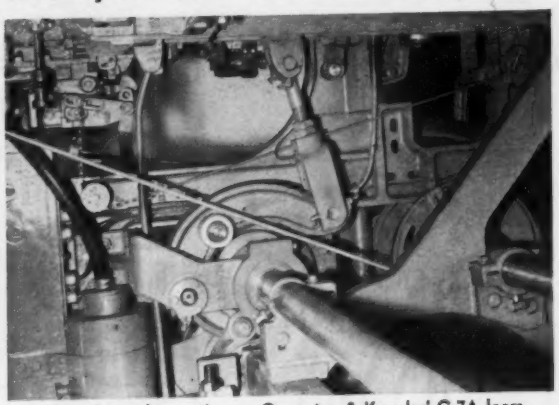
KELLOGG ..... **Booth 354**
Kellogg Switchboard & Supply Co.
6650 S. Cicero Ave., Chicago, Ill.
(See GAULT)

KENYON ..... **Booth 508**
William Kenyon & Son, Inc.
P. O. Box 109, Perth Amboy, N. J.

KEYSTONE ..... **Booth 402**
Keystone Lubricating Co.
21st & Lippincott Sts., Philadelphia 32, Pa.
EXHIBITING FIRST TIME: #88X light multipurpose lubricant in cartridges—for use in a variety of conditions of heat, moisture, and mild acids. Has operating range of O F to 275 F and can be used in rolling or sliding bearings.
ALSO SHOWING: Loom gear grease applied with special portable lubricator, #122C5X; #49 high-temperature lubricant for dryers, air compressors, and vacuum pumps; #88 multipurpose



Uster Corp. will show the "Spectomatic" slub catcher in operation.



Cam-driven lay motion on Crompton & Knowles' C-7A loom.

grease; RT (relief type) fitting that replaces relief plugs in motor and pillow blocks to prevent overlubrication.
PERSONNEL IN BOOTH:
W. F. Boger, exec. rep.
R. M. Goss, rep.
W. Little, rep.
N. W. Benjamin, rep.

KIDDE ..... **Booth 478**

Kidde Textile Machinery Corp.
35 Farrand St., Bloomfield, N. J.

EXHIBITING FIRST TIME: Kidde 168" tricot knitter, slasher, and Model 158G fiber glass warper.
PERSONNEL IN BOOTH:
W. J. Behr, Jr., pres.
H. W. Ruddick, vice-pres.
D. McCoy, sales eng.
D. O. Shepherd, sales eng.

KLUTTZ ..... **Booth 110-A**

Kluttz Rings, Inc.
Box 980, Gastonia, N. C.

LAMBETH ..... **Booth 222**

Lambeth Rope Corp.
Tarkiln Hill Rd., New Bedford, Mass.

LANE ..... **Booth 212**

W. T. Lane & Bros., Inc.
Poughkeepsie, N. Y.
(See GREENVILLE TEXTILE)

LA SALLE ..... **Booth 352**

La Salle Steel Co.
1412 150th St., Hammond, Ind.

EXHIBITING FIRST TIME: Large size "Stress-proof" steel bars and "Stress-Proof" steel bars for maintenance; "Fatigue-Proof" steel bars; "e. t. d." (elevated temperature drawing process) 150 and 180 alloy steel bars.
PERSONNEL IN BOOTH:
W. V. Trifiro, salesman
G. D. Boyer, sales eng. mgr.
W. E. Schneider, adv. and sales planning mgr.
C. W. Bimba, sales eng.
R. J. Burkhardt, asst. adv. mgr.
RESIDING AT: Poinsett Hotel

LEAGUE ..... **Booth 106-A**

G. F. League Mfg. Co.
Poinsett Hwy. at P & N Rwy., Greenville, S. C.

EXHIBITING FIRST TIME: New type positive adjustment jack stick and strap; new type dye tube holder; new styles of harness and dobby sheaves; wooden lease rod with finish 75% as hard as glass.
ALSO SHOWING: Regular line of products for weaving, spinning, and yarn preparation.
PERSONNEL IN BOOTH:
G. F. League G. F. League, Jr.

LEESONA ..... **Booth 810**

Leesona Corporation
1655 Elmwood Ave., Cranston, R. I.

EXHIBITING: Uniconer automatic cone winding machine which can find a broken end, knot it, and have the spindle back in operation in ten seconds; three looms (single shuttle) equipped with Unifil—one running double-change or semifeeler, one running with cotton warp and stretch filling—one of which makes allowances for filling pieces; the No. 210 twisterconer; and the Nip-It slub catcher.
PERSONNEL IN BOOTH:
R. Leeson
R. Pennock
F. Barrie
F. Barrows
J. Bowler
H. Kernan
E. Parish
R. Wallace
C. Sullivan
K. Gibson
J. White
R. Newell, exp. div.
L. French, exp. div.

LENKOTEX ..... **Booth 120**

Lenkotex Co., Inc.
136 Liberty St., New York 6, N. Y.

EXHIBITING: The "Touro - Strob" stroboscopic speed measuring instrument; Harnisch loom parts, including temple rolls and plastic pickers; Spintex roller bearing spindles for spinning and twisting; Mann spinning and twisting rings; Saccardo paper tubes and bobbins.
PERSONNEL IN BOOTH:
V. Lindner, sec.

LESTERSHIRE ..... **Booth 212**

Lestershire Spool & Mfg. Co.
Div. of National Vulcanized Fibre Co., Box 311, Wilmington 99, Del.
(See GREENVILLE TEXTILE and NATIONAL VULCANIZED FIBRE)

LINCOLN ..... **Booth 510**

Lincoln Engineering Co.
4010 Goodfellow Blvd., St. Louis, Mo.

EXHIBITING: "Micro-Measure" ring lubrication; automatic loom lubrication; "Dyna-Spray" hydraulic paint spray; air compressors; airline lubricators, filters, oilers; complete range of "Airline" quick disconnect couplings and other fittings.
PERSONNEL IN BOOTH:
R. Doss, div. mgr.
K. Boyer, dist. mgr.
C. Lane, dist. mgr.
J. Vlazak, dist. mgr.
J. O'Donnell, reg. mgr.
R. E. Crean, ind. sales mgr.
RESIDING AT: Spanish Motor Court

LINDLY ..... **Booth 827**

Lindly & Co.
248 Herricks Rd., Mineola, N. Y.
(See FOSTER)

LIVERMORE ..... **Booth 108-A**

H. F. Livermore Corp.
20 Linden St., Boston 34, Mass.

LIVINGSTON & HAVEN ..... **Booth 264**

Livingston & Haven, Inc.
2115 Meeting St., Charleston, S. C.

EXHIBITING: Long pneumatic lap control system installed on a 40" Kitson picker and complete with pneumatic clutch; Platt Bros. automatic doffing machine with Long lap control.
PERSONNEL IN BOOTH:
M. Haven, pres. A. Flint, vice-pres.
J. Moorefield, vice-pres.
W. Durst, Cox fndy. rep.
W. Wallace, mfr. agt.
RESIDING AT: Poinsett Hotel

LIVINGSTONE COATING ..... **Booth 201**

Livingstone Coating Corp.
P. O. Box 8282., Charlotte 8, N. C.

LOCKWOOD GREENE ..... **Booth 220-A**

Lockwood Greene Engineers, Inc.
41 E. 42nd St., New York 17, N. Y.

EXHIBITING: Photographs of recently completed textile plants; seating and telephone for visitors.
PERSONNEL IN BOOTH:
H. M. Rogers, vice-pres.
J. C. Hipp, chief eng.
L. S. Booth, chief architect
M. J. O'Brien, chief designer
T. O. Ott, head, textile dept.
R. Simpson, textile eng.
J. Z. Robinette
M. V. Gelders
M. L. Boggs
C. G. Richardson

LOEPFE ..... **Booth 822**

Gebr. Loepfe AG
Zypressenstr. 85, Zurich 40, Switzerland
(See THEILER)

LOWELL ..... **Booth 108-A**

Lowell Industries, Inc.
20 Linden St., Boston 34, Mass.
(See LIVERMORE)

MB ..... **Booth 227**

M. B. Products, Inc.
46 Victor St., Detroit 3, Mich.
(See HURLEY & HARRISON)

MACHINERY ..... **Booth 506**

Machinery Electrification, Inc.
100 River St., Northboro, Mass.
(See ELECTRO MOTION)

MAGNESIUM ..... **Booth 115-B**

Magnesium Co. of America
5220 Indianapolis Blvd., East Chicago 12, Ind.
(See ENGINEERING SALES)

MAIER ..... **Booth 128**

C. Eugen Maier GmbH
Cannstatterstr. 53, Fellbach nr. Stuttgart, Germany
(See WATSON & DESMOND)

MANN ..... **Booth 120**

Chr. Mann Maschinenfabrik
Rheinstr. 1, Waldshut/Baden, Germany
(See LENKOTEX)

MANTON-GAULIN ..... **Booth 818**

Manton-Gaulin Mfg. Co., Inc.
44 Garden St., Everett 49, Mass.

EXHIBITING: Colloid mill, laboratory homogenizer, and Model 400TK6-3BS homogenizer.
PERSONNEL IN BOOTH:
D. G. Colony, pres.
G. W. Eldridge, gen. sales mgr.
J. J. Dwyer, Ind. sales mgr.
D. Van Roosen, asst. ind. sales mgr.

DON'T FORGET THE NEW ANNEX ACROSS WEST WASHINGTON STREET

Manton-Gaulin cont'd
L. H. Reese, tech dir
C. H. Leverett
J. E. R. Hayes, rep.
L. Hayes, rep.
E. Hart, rep.
RESIDING AT: Poinsett Hotel

MARSH ..... **Booth 229**
Marsh Stencil Machine Co.
707 East B St., Belleville, Ill.
EXHIBITING: Stencil cutting machines, hand-operated and electric; dispensers for gummed tape; and a full line of marking supplies.
PERSONNEL IN BOOTH:
E. G. Krause, asst. sales mgr.
RESIDING AT: Orvin Motor Court

MARSHALL & WILLIAMS ..... **Booth 249**
Marshall and Williams Southern Corp.
P. O. Box 5285, Station B, Greenville, S. C.
EXHIBITING: Newly designed tenter, especially for cloth room handling problems, including weft straightening; line of repair parts for all makes of tentering equipment; edge-guide controls; and a complete line of tenter clips.
PERSONNEL IN BOOTH:
J. C. Nash, pres., M & W Corp.
F. H. Land, pres., M & W Southern Corp.
A. J. Marshall, sales eng.
E. E. Ford, sales eng.
W. C. Brown, sales eng.
F. Hyatt, sales eng.
C. W. Schmidt, Jr., sales eng.
C. Keep, sales eng.

MASTER ..... **Booth 144**
Master Electric Co.
126 Davis Ave., Dayton, O.
(See RELIANCE)

MATHIS ..... **Booth 310**
Mathis Water Treating Co.
U. S. Hwy. 29 North, Anderson, S. C.
EXHIBITING FIRST TIME: A corrosion meter for testing the corrosive nature of water and chemical processes.
ALSO SHOWING: Other testing equipment, chemical feed pumps.

Mathis Water Treating cont'd
PERSONNEL IN BOOTH:
J. C. Mathis, pres.
G. F. Meenaghan, consultant

MATRIX ..... **Booth 901**
Matrix Controls Co., Inc.
Somerville, N. J.

MAXBO ..... **Booth 129**
AB Maxbo
Stohagsgatan 6A, Norrkoping, Sweden
(See EDDA and SOUTHEASTERN LOOM)

McDONOUGH ..... **Booth 246**
McDonough Power Equipment, Inc.
McDonough, Ga.
EXHIBITING: Universal card coiler.
PERSONNEL IN BOOTH:
J. L. Sinback, vice-pres.
W. Phillips, eng.
W. A. Wallace, sales rep.

McGRAW-EDISON ..... **Booth 905-A**
McGraw-Edison Co.
Edison Voicewriter Div., West Orange, N. J.

MEADOWS ..... **Booth 812**
Meadows Mfg. Co.
P. O. Box 10876, Atlanta 10, Ga.

MECHANICAL FELT ..... **Booth 273**
Mechanical Felt & Textiles Co.
50 W. 18th St., Weehawken, N. J.

MEDLEY ..... **Booth 907**
Medley Mfg. Co.
Box 1319, Columbus, Ga.

MERROW ..... **Booth 234**
The Merrow Machine Co.
28 Laurel St., Hartford 6, Conn.
(See HOLLISTER-MORELAND)

METLON ..... **Booth 271**
Metlon Corp.
432 Park Ave., South, New York 16, N. Y.
EXHIBITING: Metlon and Metlon F nontarnishing yarns, and fabrics woven and knitted from these yarns.
PERSONNEL IN BOOTH:
A. C. Brucks, pres.
R. H. Fleming, rep.
H. C. Cobb, Jr., rep.
RESIDING AT: Spanish Motel

METTLER ..... **Booth 302**
Mettler Instrument Corp.
Princeton-Hightstown Rd., Hightstown, N. J.
EXHIBITING FIRST TIME: A new yarn balance reading in grains, denier, cotton count, and tex unit.
ALSO SHOWING: Analytical balances and precision scales.
PERSONNEL IN BOOTH:
N. L. Cooper, sales supv.
R. Bowdish, sales rep.
RESIDING AT: Catalina Motor Lodge

3M ..... **Booth 845**
Minnesota Mining and Manufacturing Co.
900 Bush Ave., St. Paul 6, Minn.
EXHIBITING FIRST TIME: "3M-Matic" machine for splicing with "Scotchweld" heat-activated tape, designed for all fabrics including glass.
ALSO SHOWING: "Scotch" brand tapes; "Scotchtred," "Scotch-Lag," and "Safety-Walk" nonslip surfacing.
PERSONNEL IN BOOTH:
G. F. Pyle, mgr. new product dev.
J. H. Mellon, tape marketing coordinator
H. F. Groth, reg. sales mgr.
R. W. Fagen, branch sales mgr.
F. T. Baltz, salesman
RESIDING AT: Holiday Inn

MINNESOTA PAINTS ..... **Booth 326**
Minnesota Paints, Inc.
1101 3rd St., S., Minneapolis, Minn.
EXHIBITING FIRST TIME: AV-6684 polyurethane floor sealer and finish.
ALSO SHOWING: Mildew-resistant and fume-proof mill whites and colors, moisture- and chemical-resistant machinery enamels, and tung-phenolic floor sealers and finishes.
PERSONNEL IN BOOTH:
C. Morgan, sales rep.
D. D. Wyatt, sales rep.
RESIDING AT: TraveLodge Motel

MITCHAM ..... **Booth 329**
Harley Mitcham & Co.
830 N. Marietta St., Gastonia, N. C.

Harley Mitcham cont'd
EXHIBITING: Repair parts for textile machinery.
PERSONNEL IN BOOTH:
D. O'Hair, salesman
C. Stover, salesman
R. W. Bailey, salesman
J. Styers, shop supt.
L. Andrews, vice-pres.
E. Strange, pres.

MITCHELL-BISSELL ..... **Booth 430**
Mitchell-Bissell Co.
825 Brunswick Ave., Trenton, N. J.
EXHIBITING: Thread guides and wire guides.
PERSONNEL IN BOOTH:
J. Mitchell, pres.
W. F. Fuetterer, sec.
J. P. Mueller, sales mgr.
RESIDING AT: Wade Hampton Motel

MODERN PLASTICS ..... **Booth 128**
Modern Plastics Engineering Corp.
North Ave., Taunton, Mass.
(See WATSON & DESMOND)

MODERN TEXTILES ..... **Booth 121**
"Modern Textiles"
303 Fifth Ave., New York 16, N. Y.

MOFFATT ..... **Booth 265**
Moffatt Bearing Co.
1640 Fairmount Ave., Philadelphia 30, Pa.
EXHIBITING: Complete line of anti-friction bearings, oil seals, retaining rings, and bearing lubricants.
PERSONNEL IN BOOTH:
J. L. Blackwell
J. R. Milford
S. D. Zeanah
W. B. Osborne
G. Sheppard
D. Duncan
J. Dean
R. Womble
H. W. McCard
D. G. Hornbaker
O. S. Livingston
R. M. Johnston
RESIDING AT: Poinsett Hotel

MONROE ..... **Booth 343**
Monroe Calculating Machine Co., Inc.
555 Mitchell St., Orange, N. J.
EXHIBITING: "Monrobot IX" electronic textile billing computer, "President" accounting machine, and automatic calculators.
PERSONNEL IN BOOTH:
L. A. Dumas, sales mgr. sou. div.
J. C. Downing, acctng. mach. mgr.
B. T. Burry, sales mgr., Greenville
E. S. Cabaniss, sales mgr., Greensboro
W. S. Hobgood, acctng. mach mgr., Greensboro
S. P. Greer, sales mgr., Asheville
RESIDING AT: Orvin Motor Court

MORTON SALT ..... **Booth 509**
Morton Salt Co.
110 N. Wacker Dr., Chicago 3, Ill.

MOTO-TRUC ..... **Booth 834**
Moto-Truc Co.
1953 E. 59th St., Cleveland 3, O.
(See BAKER)

MOUNT HOPE ..... **Booth 114**
Mount Hope Machinery Co.
15 Fifth St., Taunton, Mass.
EXHIBITING: Motion picture on weft straightening equipment.
PERSONNEL IN BOOTH:
J. D. Robertson, Jr., mgr., weft straightening div.
S. A. Moffitt, mgr., textile div.
RESIDING AT: TraveLodge Motel

MURPHY ..... **Booth 223**
T. J. Murphy Fur Co.
103 Park St., Lewiston, Maine
(See BATSON)
EXHIBITING: Shuttle fur.
PERSONNEL IN BOOTH:
D. S. Murphy, owner
L. P. Batson, Jr., rep.
H. E. Batson, rep.
E. Carmen, rep.
H. Cannon, rep.
J. Farish, rep.
RESIDING AT: Greenville Hotel

NATIONAL CASH REGISTER ..... **Booth 365**
National Cash Register Co.
Main & K Sts., Dayton 9, Ohio

NATIONAL PLASTICS ..... **Booth 449**
National Plastics, Inc.

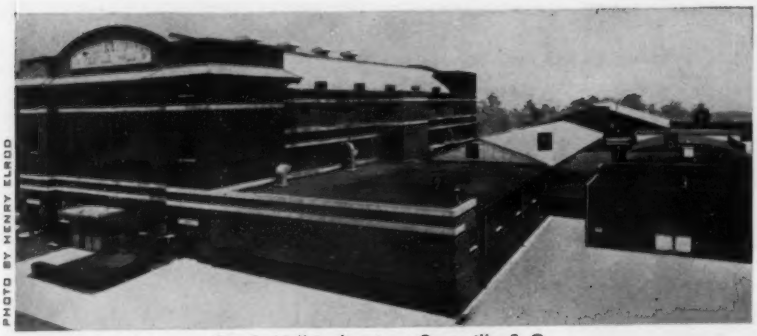


PHOTO BY HENRY ELROD

Textile Hall in downtown Greenville, S. C.

You are cordially invited to visit with T I's editors and business representatives in booth 408. Just follow the footprints in the box on page 131.

--The Editors

National Plastics contd

2330 McCalla Ave., Knoxville, Tenn.
(See YEOMANS)

NATIONAL RING TRAVELER.....Booth 213
National Ring Traveler Co.
354 Pine St., Pawtucket, R. I.
EXHIBITING: Ring travelers.
PERSONNEL IN BOOTH:
N. A. Jerome, exec. vice-pres.
L. E. Taylor
H. B. Askew
T. H. Ballard
F. S. Beacham
C. L. Fitts
RESIDING AT: Poinsett Hotel

NATIONAL STARCH .....Booth 445
National Starch & Chemical Corp.
750 Third Ave., New York 17, N. Y.
EXHIBITING: Resyn 3600, an aqueous dispersion of vinylidene chloride copolymer, used as a finish for industrial fabrics and as a binder for nonwoven fabrics; "Kofilms," acetylated starch derivatives used for sizing yarns.
PERSONNEL IN BOOTH:
W. H. Stone
D. Lassiter
E. Gibbon
R. O'Brien
H. Smith
H. Olsen
E. Maslanka
G. Lanciault

NATIONAL ULTRASONIC .....Booth 341
National Ultrasonic Corp.
111 Montgomery Ave., Irvington 11, N. J.
(See GENERAL ENTERPRISES)

NATIONAL VULCANIZED FIBER Booth 212, 832
National Vulcanized Fibre Co.
and Lestershire Spool & Mfg. Co. Div.
Box 311, Wilmington 99, Del.
(See GREENVILLE TEXTILE)
EXHIBITING FIRST TIME: Steaming box of polyester fiber glass panels; lightweight conveyor box for Pfaff Varion transportation system.
ALSO SHOWING: Unilevel truck; seamless roving cans up to 18" diameter; boxes; trays; floor trucks; Lestershire spools and bobbins.
PERSONNEL IN BOOTH:
E. B. Burnley, sales mgr., Kennett receptacles
G. M. Hutchinson, sales mgr., Lestershire bobbins
L. J. Phelps, plant mgr., Lestershire bobbins
G. M. Lang, coordinator mktg. dept.
D. E. Williams, Jr., salesman W. B. Plowden
E. J. Crocker, salesman
J. C. Davis, salesman

NEW DEPARTURE .....Booth 146
New Departure Div., General Motors Corp.
Bristol, Conn.
EXHIBITING: Ball bearings.
PERSONNEL IN BOOTH:
R. E. Merrill, E. sales eng.
R. E. Honeycutt, zone mgr.
E. H. Case, sales eng.
R. D. Brouwer, sales eng.
C. T. Bragdon, tex. eng. spec.
H. E. Smith, prod. eng.
A. C. Lormore, grp. sales. supv.
A. Curtis, Jr., zone mgr.
T. H. Adams, Jr., sales eng.
RESIDING AT: Colonial Court Hotel

NEW ENGLAND PAPER TUBE.....Booth 128
New England Paper Tube Co.
173 Weeden St., Pawtucket, R. I.
(See WATSON & DESMOND)

NEW YORK & NEW JERSEY.....Booth 109
New York & New Jersey Lubricant Co.
292 Madison Ave., New York 17, N. Y.
EXHIBITING: Complete line of "Non-Fluid" oils for all types of textile machinery.
PERSONNEL IN BOOTH:
I. L. Hall, vice-pres.
R. F. Bagwell, Jr., rep.
A. M. Cowan, rep.
F. W. Phillips, sou. dist. mgr.
R. A. Snipes, rep.
J. A. Sorrells, Jr., rep.
F. W. Winecoff, rep.
RESIDING AT: Poinsett Hotel and Greenville Hotel

NILFISK .....Booth 320
Nilfisk American, Inc.
706 Buncombe St., Greenville, S. C.
EXHIBITING FIRST TIME: Model G73 heavy duty industrial suction cleaner; and Model G72 industrial suction cleaner. These are designed for cleaning looms, spinning frames, cards, ceilings, walls, etc., while equipment runs.
PERSONNEL IN BOOTH:
E. W. Henningsen, gen. mgr.

NOBLE .....Booth 223
Roy Noble Co.
New Bedford, Mass.
(See BATSON)

NOCKER .....Booth 206
Hans Nocker
Marienheide/Rhld., Germany
(See ROY)

NORRIS .....Booth 432
Norris Brothers
Box 1260, Greenville, S. C.
(See HOLT)

NUTTING .....Booth 115-B
Nutting Truck & Caster Co., Inc.
1201 W. Division St., Faribault, Minn.
(See ENGINEERING SALES)

O-M SPINNING MACHINE .....Booth 905
O-M Spinning Machine Mfg. Co.
Osaka, Japan
(See RUDNICK)

OIL-DYNE .....Booth 264
Oil-Dyne, Inc.
2115 W. Marquette, Chicago, Ill.
(See LIVINGSTON & HAVEN)

OLNEY .....Booth 446
Olney Paint Co.
157 St. John St., Spartanburg, S. C.
(See GILMAN)
PERSONNEL IN BOOTH:
R. B. Olney
W. P. Dobson
J. M. Ison
C. H. Dodson
B. W. Sadler
L. C. Teeters

ORE-LUBE .....Booth 341
The Ore-Lube Co.
11 Front St., New York 4, N. Y.
(See GENERAL ENTERPRISES)

PADDOCK .....Booth 442
J. C. Paddock Co.
S. Church St. Ext., Spartanburg, S. C.
EXHIBITING FIRST TIME: A collapsible cloth skid of one-piece construction—eliminates losing parts. It may be stacked when loaded; when empty, sides fold down to occupy less space during return trip. Floating bottom creel trucks and fibre boxes are also to be displayed.
PERSONNEL IN BOOTH:
S. E. Mabry, gen. supt.
R. H. Williams, salesman
L. E. Corn, salesman

PARKS .....Booth 227
M. H. Parks Co.
30 Brown St., Winchendon, Mass.
(See HURLEY & HARRISON)

PARKS-CRAMER .....Booth 502
Parks-Cramer Co.
P. O. Box 444 Fitchburg, Mass.
EXHIBITING: Complete line of traveling cleaning equipment, both blowing and vacuum; SpinSaVac end collection and SpinSaCreel; certified climate systems for humidification and cooling.
PERSONNEL IN BOOTH:
M. Ford, pres.
C. D. Lee, Jr., vice-pres.
W. W. Hewitt, eng.
E. H. Harding, adv. mgr.
W. J. Buck, sales eng.
J. F. Crooks, sales eng.
W. B. Granger, sales eng.
J. Nesmith, sales eng.
T. F. Rollins, sales eng.
L. R. Sibley, sales eng.
C. E. Ware, sales eng.
W. B. Walker, sales eng.

PATTERSON-KELLEY .....Booth 360
The Patterson-Kelley Co., Inc.
459 Warren St., East Stroudsburg, Pa.
EXHIBITING FIRST TIME: Scalefree gas-fired hot water storage heater. This is a complete package unit with all accessories and burner, ready to be connected to service lines.
ALSO SHOWING: Waste water heat reclaimer; flash steam condenser and condensate cooler; hot water storage heater; and instantaneous circulating booster heater.
PERSONNEL IN BOOTH:
J. J. Coleman, chief eng., tex. div.
J. N. Peters, sales mgr.
N. Ermolovich, sales eng.
T. C. Heyward, sales eng.
RESIDING AT: Mauldin House Motel & Holiday House

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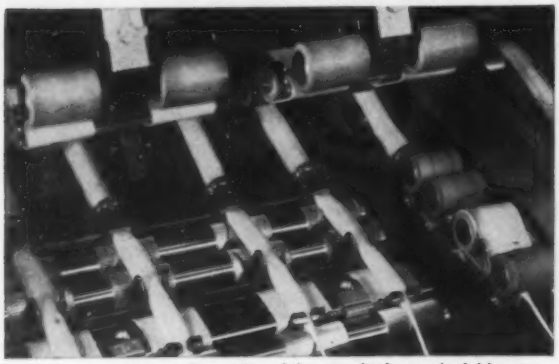
What you'll see at the Greenville Show



American Rieter Co. will exhibit its high-speed slubber.

Schweiter filling winder shown by Theiler has suction dust removal.

PAYSON-HARRIS-REED ..... **Booth 838**
Payson-Harris-Reed Corp.
2916 W. Jackson St. Chicago, Ill.
(See JENKINS METALS)

PENICK & FORD ..... **Booth 427**
Penick & Ford, Ltd., Inc.
750 Third Ave., New York 17, N. Y.
EXHIBITING: Corn starches and starch derivatives as they are applied to textile sizing and finishing.
PERSONNEL IN BOOTH:
O. H. Tousey, vice-pres.
D. P. O'Connor, vice-pres.
P. G. Wear, sales mgr.
G. M. Anderson, asst. sales mgr.
J. R. Heard, tech. sales eng.
J. P. Holland, tech. sales eng.
J. H. Almand, sales rep.
G. C. Henry, sales rep.
W. J. Kirby, sales rep.
T. H. Nelson, sales rep.
J. R. Poer, sales rep.
D. K. Smith, sales rep.
RESIDING AT: Howard Johnson's Motor Lodge

PENNELL ..... **Booth 110-B**
George H. Pennell Co.
P. O. Box 5225, Greenville, S. C.
EXHIBITING: Truco diamond drilling equipment and Ramset fastening system.
PERSONNEL IN BOOTH:
G. H. Pennell, owner
C. L. Garrett, salesman
J. L. Blackerby, salesman
R. S. McKinley, dist sales mgr., Ramset

PERFECTING SERVICE ..... **Booth 409**
Perfecting Service Co.
332 Atando Ave., Charlotte 6, N. C.
EXHIBITING FIRST TIME: The "Vari-Pitch" builder that creates a new bobbin profile, adds extra ounces to roving packages—a complete package unit that fits all American frames; a stripper that uses a stream of compressed air to strip up to eight roving packages simultaneously at speeds of 200 ypm; and a roving frame tension regulator —the "Vari-Tension"—that uses all the tension roving will stand in winding to build denser, more uniform packages without excessive tension breaks.
ALSO SHOWING: The rotary union, a rotating joint for revolving cylinders or drums; and the "Unitrap," a bucket-type steam trap with a dual valve requiring no adjustments.
PERSONNEL IN BOOTH:
A. J. DeMeyer, vice-pres. of sales
C. Bookout, sales eng.
W. G. Renner, sales eng.

PERMACEL ..... **Booth 335**
Permacel
U. S. Hwy 1, New Brunswick, N. J.
EXHIBITING: 720 slasher tape; 02 double-faced paper tape; splicing tapes; epoxy adhesives (including PA-1041 for mounting junction boxes to concrete, metal, wood, etc., and PA-1042 for mounting fixtures, hooks, hangers, towel, soap, and pill dispensers to wall); 4496 epoxy coating for protecting buildings, equipment; vinyl tapes for wire splicing, wrapping, and aisle marking; strapping tapes and dispensers; paper tapes in a wide range of backings, colors, and types for color coding, lightweight packaging and sealing; and label stock and printable tapes for labeling roll stocks and cartons and for flagging defects or splices.
PERSONNEL IN BOOTH:
G. A. Fitzgerald, vice-pres., mkt.
J. E. Schuler, div. mgr.
R. S. Bradford, sales mgr.
J. W. Griffin, sales rep.

PEROLIN ..... **Booth 361**
The Perolin Co., Inc.
350 5th Ave., New York, N. Y.

PICANOL ..... **Booth 839**
Metiers Automatiques Picanol SA
1-13 Ave. de Pologne, Ypres, Belgium

PIEDMONT ..... **Booth 322**
Piedmont Machine Shop, Inc.
1401 W. Gaston Ave., Gastonia, N. C.
EXHIBITING: Cast iron, Celeron, and hardened steel gears; hardened gear studs; cast iron picker bearings; new picker lap pins; new drawing pins; new steel rolls and repair services for pickers, waste machines, cards, drawing, combers, lap machines, roving frames, spinning frames, twister frames, pin drafters.
PERSONNEL IN BOOTH:
J. L. Blalock, pres.
F. J. Campbell, sales rep.
H. Ferguson, asst. supt.

PIONEER ..... **Booth 212**
Pioneer Heddle and Reed Co., Inc.
Box 116, Station A, Atlanta 10, Ga.
(See GREENVILLE TEXTILES)

PNEUMAFIL ..... **Booth 118**
Pneumafil Corp.
P. O. Box 8336, Charlotte 8, N. C.

POE ..... **Booth 516**
Poe Hardware & Supply Co.
556 Perry Ave., Greenville, S. C.
EXHIBITING: 3-M coated abrasives. Brown & Sharpe precision tools and instruments, industrial and home power tools (Delta) made by Rockwell Mfg. Co.
PERSONNEL IN BOOTH:
C. Poe, pres.
C. Poe, vice-pres. and treas.
W. T. Henderson, Jr., vice-pres. and sec.
J. J. Swan, adv. mgr.

POWER ..... **Booth 324**
Power Brushes, Inc.
756 S. Byrne Rd., Toledo 9, O.

POWERS ..... **Booth 355**
The Powers Regulator Co.
3400 Oakton St., Skokie, Ill.
EXHIBITING FIRST TIME: Corrosion-resistant "Flowrite" valves.
ALSO SHOWING: Series 100 time cycle controller; Series 200 temperature regulator; No. 11 temperature regulator.
PERSONNEL IN BOOTH:
E. R. Foss, dist. mgr.
B. L. Vehorn, br. mgr.
B. L. Arbuckle, br. mgr.
C. W. Atkinson, textile sales
C. A. Carter, sales
J. G. Slattery, sales
RESIDING AT: Orvin Court

PRECISION ..... **Booth 409**
Precision Gear Div.
Perfecting Service Co., 332 Atando Ave., Charlotte 6, N. C.
(See PERFECTING SERVICE)

PROCTOR & SCHWARTZ ..... **Booth 503**
Proctor & Schwartz, Inc.
Seventh St. and Tabor Rd., Philadelphia 20, Pa.
EXHIBITING: Model 729B blending feed that automatically measures out accurate blends and which may be grouped and supplied with transverse floor apron to receive successive weighings and deposit them as a sandwich blend.
PERSONNEL IN BOOTH:
J. P. Christ
D. D. Cunningham
A. C. Dailey
L. M. Christianson
E. W. Gehrung
C. W. Schwartz, IV

PROGRESSIVE ..... **Booth 128 and 906**
Progressive Engineering Co.
241 W. Water St. Rockland, Mass.
(See WATSON & DESMOND)

PURE ..... **Booth 105**
The Pure Oil Co.
35 E. Wacker Dr., Chicago, Ill.

PURITAN ..... **Booth 418**
Puritan Chemical Co.
916 Ashby St., N. W., Atlanta 18, Ga.
PERSONNEL IN BOOTH:
C. E. Braun, sor. div. sales mgr.
W. H. Frey, vice-pres.
E. P. Collins, reg. sales mgr.
RESIDING AT: Calhoun Towers

RCA ..... **Booth 347**
Radio Corp. of America
Front & Cooper Sts., Camden, N. J.

RAMSET ..... **Booth 110-B**
Ramset Fastening System
12117 Berea Rd., Cleveland 11, Ohio.
(See PENNELL)

RAYMOND ..... **Booth 458**
The Raymond Corp.
Greene, New York
EXHIBITING FIRST TIME: Electric Walkie Stacker; narrow aisle clamp truck; triple stage mast high stacking "reach fork" truck.
PERSONNEL IN BOOTH:
W. L. Peck, adv./sales prom. mgr.
W. M. Anderson, reg. sales rep.
RESIDING AT: Poinsett Hotel

REEVES ..... **Booth 144, 903**
Reeves Pulley Co.
Columbus, Ind.
(See RELIANCE)

REINERS ..... **Booth 128**
Reiners & Furst
Leibnizst 85, M. Gladbach, Germany
(See WATSON & DESMOND)

RELIANCE ..... **Booth 144**
Reliance Electric & Engineering Co.
24701 Euclid Ave., Cleveland 17, Ohio

Reliance cont'd

EXHIBITING FIRST TIME: The new Model 1200-T Reeves "Vari-Spin" drive for spinning frames that permits infinitely adjustable speed settings within a 2:1 speed range while unit is running; a Reliance Super "T" V-S variable speed drive for warpers, slashers, etc., featuring control cabinet size reductions up to 35 per cent; a "Rube Goldberg" mechanism equipped with six different types of Reliance drives—Duty Master integral horsepower a-c motor, Master right-angle gearmotor, fractional hp Reeves Motodrive, Reeves motor pulley, a 1 hp all-electric adjustable voltage V-S Jr. drive, and a Master Speedranger adjustable speed drive.
ALSO SHOWING: 20 hp Reliance V-S drive; card frame motor; lint-proof a-c motor; fractional hp all-electric V-S Jr. adjustable speed drive, and a variety of factory renewal parts.

RHOADS ..... **Booth 471**
J. E. Rhoads & Sons
2100 W. 11th St., Wilmington 99, Delaware
EXHIBITING FIRST TIME: "Texalon" all-synthetic round belting; "Nytan" check straps.
ALSO SHOWING: "Tanastic" plastic-core, leather-surface belting; "Tannate" flat leather belting.
PERSONNEL IN BOOTH:
C. H. Tildes, marketing mgr.
L. H. Schwoebel, salesman
A. S. Jay, salesman
P. E. Lambert, salesman
H. H. Cleghorn, salesman
J. T. Hoffman, salesman
U. G. Demond, adv. mgr.
RESIDING AT: Poinsett Hotel; Flamingo Motel

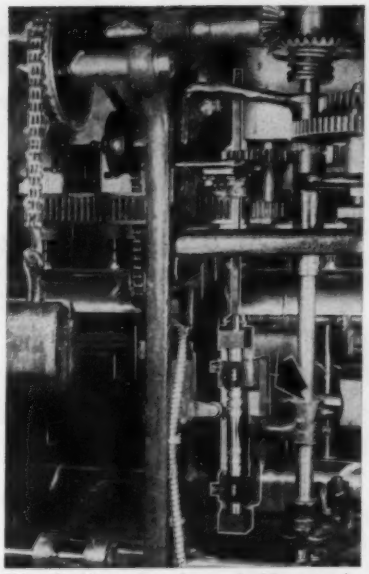
RICE ..... **Booth 432**
Rice Dobby Chain Co.
Millbury, Mass.
(See HOLT)

RIDGE TOOL ..... **Booth 435**
The Ridge Tool Co.
Elyria, Ohio
EXHIBITING FIRST TIME: Accessories to convert the portable "Ridgid" 300 power drive into a fast, smooth-operating pipe and bolt threading machine; the No. 354 spiral reamer for 3½" to 4" pipe and conduit; new flaring tools; two new chain wrenches—No. C-14 for pipe up to 2"; No. C-18 for up to 2½" pipe and fittings.
ALSO SHOWING: Complete line of pipe tools.
PERSONNEL IN BOOTH:
L. C. Richardson, salesman
J. Wall, salesman
F. Ronan, salesman
R. D. Fye, sales mgr.
W. L. Parcel, exec. vice-pres.

RIETER ..... **Booth 820**
Joh. Jacob Rieter & Co., Ltd.
Winterthur, Switzerland
(See AMERICAN RIETER)

ROBERTS ..... **Booth 808**
Roberts Co.
Sanford, N. C.
EXHIBITING FIRST TIME: "Supreme" high-speed, ball-bearing spindles to which a cam brake may be attached originally or at any later date.
ALSO SHOWING: Two big-package, all-ball-bearing, 25"-wide "Arrow" spinning frames—Model M-1 cotton system frame and Model WM-1 worsted system frame—in operation. Eight drafting systems, four for cotton system spinning, two for worsted system spinning, and two for roving.
PERSONNEL IN BOOTH:
R. E. Pomeranz, pres.
J. N. Pomeranz, vice-pres.
R. Padgett, vice-pres.
E. Blackwood
M. O. Bradshaw
F. Glass
M. C. Golden
S. Kent
C. E. Oliver
W. A. J. Peacock
W. Rankin
J. Stanley
R. F. Walker

ROCK ..... **Booth 908**
Edward B. Rock
666 Fifth Ave., New York 19, N. Y.
(See COMETSA)



"Vari-Pitch" roving frame builder, to be shown by Perfecting Service Co., was developed by Institute of Textile Technology, and is said to increase bobbin capacity.

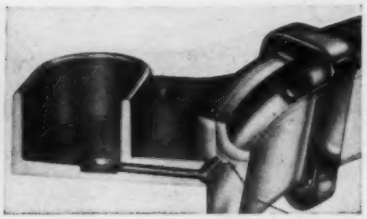
ROCKWELL ..... **Booth 516**
Rockwell Mfg. Co.
Delta Power Tool Div., 411 N. Lexington Ave., Pittsburgh 8, Pa.
(See POE)

ROSE ..... **Booth 207**
E. F. Rose & Co.
Malden, N. C.

ROSS-MEEHAN ..... **Booth 303**
Ross-Meehan Foundries
1601 Carter St., Chattanooga 1, Tenn.
EXHIBITING FIRST TIME: Many examples of castings produced for textile mills, including stainless steel castings used in dyeing machines and "Meehanite" metal castings which provide high strength, wear resistance, and hardness.
PERSONNEL IN BOOTH:
D. W. Kling, sales eng.
P. T. Gaynor, sales eng.
J. L. Payne, vice-pres., sales
RESIDING AT: Poinsett Hotel; Ottaray Hotel

ROTHERM ..... **Booth 215**
Rotherm Engineering Co., Inc.
7280 W. Devon Ave., Chicago 31, Ill.
EXHIBITING FIRST TIME: Copper expansion joints to solve hot water heating expansion problems; air nozzles made of glass fiber; portable room humidifiers.
ALSO SHOWING: Revolving joints.
PERSONNEL IN BOOTH:
H. S. Kuhn, pres.
H. D. Hohm, rep.
RESIDING AT: 128 Buist Ave., Greenville

ROY ..... **Booth 206**
B. S. Roy & Son Co.
Roy International, Inc.
801 Southbridge St., Worcester, Mass.
EXHIBITING: "Alumaroy" special aluminum alloy drum grinder; "Microcision" micrometer feed grinding cradle; "Featherweight" all-aluminum stripper roll; special vitrified wheel grinder for metallic wire; parts and accessories; Peter Wolters "Nissex" card clothing, SM7 400 centerless cot grinder, and WT56 electric cot tester; Hans Nocker flats for cotton cards.
PERSONNEL IN BOOTH:
D. G. Bousquet, sou. mgr.
F. Buonomo, mgr., north. div.
E. H. Duke, sales eng.
F. E. Barnes, sales eng.
F. J. Leppkes, mgr., Peter Wolters Co.
RESIDING AT: Ottaray Hotel



Herr Mfg. Co.'s new conical ring—oil flows to annular reservoir (arrow) within the ring, then is drawn by capillary action through seams (seen above and right of reservoir).

RUDNICK ..... **Booth 905**
Edward S. Rudnick, Representatives
P. O. Box 244, New Bedford, Mass.
EXHIBITING: The Kanegafuchi "Auto-Doffer" for completely automatic doffing of spinning frames and twisters in operation on the latest OM-S sliver-to-yarn spinning frame which is equipped with automatic spindle speed regulating device, automatic stop and rail lowering motion (with doffing pilot lamp), automatic starting clutch, automatic lubrication, and increased can and bobbin capacities; Daiwa's improved attachment to increase cotton card production and cleaning efficiency; the Spi-Ra-Clean automatic spindle cleaner and lubricator; Izumi wooden spinning tubes and filling bobbins; Godo shuttles; Nippon card clothing; Nihon spindles and automatic continuous card strippers.
PERSONNEL IN BOOTH:
E. S. Rudnick, owner
W. Bowlin, rep.
C. McMahan, rep.
M. Kume, Mitsui rep.
T. Hiki, Mitsui rep.
J. Hasagawa, O-M eng.
RESIDING AT: Greenville Hotel

RUTI ..... **Booth 822**
Ruti Machinery Works Ltd.
Ruti ZH, Switzerland
(See THEILER)

SACM ..... **Booth 907**
Societe Alsacienne de Constructions Mecaniques
Mulhouse, France
(See MEDLEY)

SACCARDO ..... **Booth 120**
Industrie Saccardo SpA
Via Battaglione Val Leogra 22, Schio (Vicenza), Italy
(See LENKOTEX)

SACO-LOWELL ..... **Booth 835-A**
Saco-Lowell Replacement Parts Division
Saco-Lowell Shops
Greenville, S. C.
EXHIBITING FIRST TIME: A new double doffer condenser that increases cleaning action without causing any fiber damage; a conventional spinning frame with a new oilless changeover.
ALSO SHOWING: Spindles, rings, travelers; gears; bottom steel rolls; changeover for completely modernizing cards.
PERSONNEL IN BOOTH:
R. Walters, exec. vice-pres. gen. mgr.
J. W. Hubbard, vice-pres., sales
A. L. Landau, asst. gen. mgr. & sales mgr.
RESIDING AT: Poinsett Hotel

SCHACHNER ..... **Booth 228**
Schachner Leather & Belting Co.
2601 West Blvd., Charlotte 3, N. C.
EXHIBITING FIRST TIME: A treated box front and loom leather especially adapted to high speed looms; molded plastic shuttles; a synthetic take-up roll covering especially designed for processing glass and fine synthetic yarns.
ALSO SHOWING: "Schaco" impregnated long draft spinning aprons (leather); "Ny-Power" nylon and chrome belting.
PERSONNEL IN BOOTH:
J. A. Schachner, Jr., pres.
B. M. Schachner, sales mgr.
P. G. Schachner, sales rep.
J. L. Harkey, sales rep.
RESIDING AT: Travel Lodge Motel

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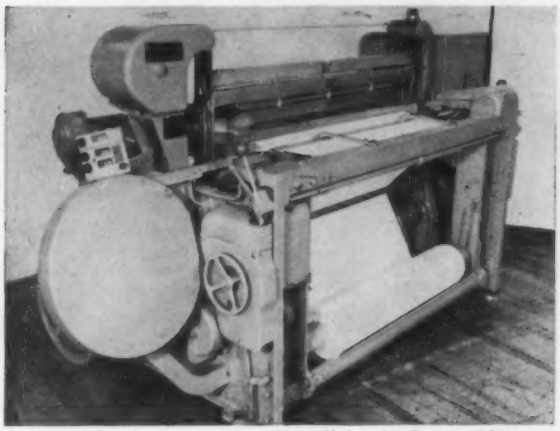
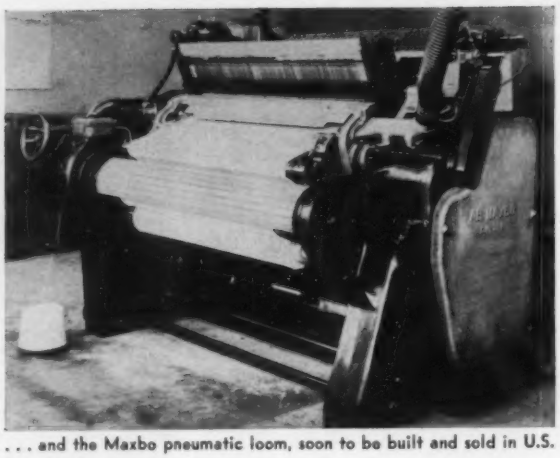
What you'll see at the Greenville Show



Two shuttleless looms at Greenville will be the Draper DSL . . .



. . . and the Maxbo pneumatic loom, soon to be built and sold in U.S.

SCHARER ..... **Booth 449**
Scharer Textile Machine Works
Erlenbach-Zurich, Switzerland
(See YEOMANS)

SCHLAFHORST ..... **Booth 482**
W. Schlafhorst & Co.
Blumenbergerstr. 143, M. Gladbach, Germany
(See TERRELL)

SCHMIDT ..... **Booth 456**
Schmidt Mfg. Co.
280 North St., New Bedford, Mass.

SCHWEITER ..... **Booth 822**
Schweiter AG
Horgen-Zurich, Switzerland
(See THEILER)

SCOTT TESTERS ..... **Booth 401**
Scott Testers, Inc.
P. O. Box 963, Providence, R. I.
EXHIBITING: The latest version of the Model CRE electronic tensile tester featuring pushbutton control and an upward moving crosshead that contributes to operator convenience and permits making more tests per hour; the Model X-3 machine for making fabric tear and tensile tests to 75 lb maximum; Model T-1 tester for determining twist in plied and cabled yarns; other yarn handling and reeling equipment for testing and quality control.
PERSONNEL IN BOOTH:
J. E. Hargreaves, mgr.
W. E. Anderson, sales eng.

SELIG ..... **Booth 232**
The Selig Co.
342 Marietta St., N. W., Atlanta 13, Ga.
EXHIBITING FIRST TIME: "Superial" wood floor finish.
ALSO SHOWING: Complete line of sanitary and floor maintenance material and equipment.
PERSONNEL IN BOOTH:
W. F. Bode, vice-pres. & gen. mgr.
A. Hamburger, vice-pres. sales
C. Pearl
S. Hayes
M. Fine
B. Hyatt
C. Vickery
L. Strasburger
M. Doctor
A. Schwab
D. Heiman
J. Schulman
RESIDING AT: Greenville Hotel

SEYDEL-WOOLLEY ..... **Booth 238**
Seydel-Woolley & Co.
748 Rice St., N. W., Atlanta 18, Ga.
EXHIBITING: A complete line of textile chemicals.
PERSONNEL IN BOOTH:
V. Woolley, bd. ch.
P. Sydel, pres.
J. Seydel, sec. & treas.
W. LaGrone, vice-pres.
D. Meriwether, vice-pres.
V. R. Mills, tech. rep.
R. P. Anthony, tech. rep.
C. W. Braswell, tech. rep.

Seydel-Woolley cont'd
F. B. deLoach, asst. sales mgr.
W. H. Cutts, tech. rep.
E. F. Harrison, tech. rep.
D. B. Hemphill, tech. rep.
A. V. McAlister, tech. rep.
RESIDING AT: Greenville Hotel

SHELL ..... **Booth 103**
Shell Oil Co.
50 W. 50th St., New York, N. Y.
EXHIBITING FIRST TIME: Detergent type spindle oils.
ALSO SHOWING: Shell "Vexilla" oils.
PERSONNEL IN BOOTH:
E. J. Colerick
K. N. Nonweiler
M. S. Treadway
F. H. Ernst
A. Stevens
D. Shaw
W. C. Landis

SHERRILL ..... **Booths 270, 909**
Sherrill Mfg. Co., Inc.
P. O. Box 1331, Gastonia, N. C.

SIGNODE ..... **Booth 835-B**
Signode Steel Strapping Co.
2600 North Western Avenue, Chicago 47, Ill.
EXHIBITING: A fully automatic power strapping machine; air-powered and electric-powered strapping tools; power strap feeder; steel strapping; dispensers; cutters, and accessories.
PERSONNEL IN BOOTH:
M. L. Fagin, reg. mgr.
C. H. Carlson, sales prom. mgr.
J. M. Moon, exec. vice-pres.
M. C. Carlson, gen. sales mgr.
R. S. Schwerman, sales rep.
T. O'Neal, sales rep.
J. Garrett, sales rep.
C. Talbutt, sales rep.
L. Sierra, sales rep.
R. Atwood, sales rep.
J. Burch, sales rep.
M. Helsley, sales rep.
RESIDING AT: Poinsett Hotel and TraveLodge Motel

SIRRINE ..... **Booth 204**
J. E. Sirrine Co.
215 S. Main St., Greenville, S. C.
EXHIBITING: Reception space for visitors, with telephone.
PERSONNEL IN BOOTH:
R. R. Adams
F. B. Bozeman
W. L. Carpenter
R. B. Epting
G. C. Gaskin
J. T. Higgins
C. J. Liles
H. W. Meakin
W. H. Nardin
W. A. Robinson
M. M. Stokely
A. D. Asbury
J. H. Bringhurst, Jr.
W. H. Crumley
H. S. Forrester
E. E. Gerken
S. M. Hunter
M. Lite
I. J. Mikell
G. P. Patterson
L. A. Seaborn
C. T. Wise
J. K. Blackman

Sirrine cont'd
L. W. Burdette
G. W. Cumbus
H. W. Frederick
O. F. Going
M. C. Kendrick
F. M. Martin
G. R. Morgan
A. M. Rickman, Jr.
J. F. Spellman
G. Wrigley, Jr.

SKINNER ..... **Booth 264**
Skinner Valve Div. The Skinner Chuck Co.
New Britain, Conn.
(See LIVINGSTON & HAVEN)

SLIP-NOT ..... **Booth 346**
Slip-Not Belting Corp.
Box 109, Kingsport, Tenn.

SMITH ..... **Booth 318**
Smith Enterprises, Inc.
P. O. Box 188, Rock Hill, S. C.
EXHIBITING FIRST TIME: Safety award programs; a unique employee Christmas gift idea.
PERSONNEL IN BOOTH:
R. Burris, pres.
F. Morecock, sales
RESIDING AT: Ottaray Hotel

SNOWISS ..... **Booth 432**
B. Snowiss Fur Co.
935 Bellefonte Ave., Lock Haven, Pa.
EXHIBITING: Australian opossum and North American muskrat skins for shuttle fur; manufactured opossum and muskrat shuttle fur strips; wool lambskins; manufactured sheepskin strips; sheepskin creel pads.
PERSONNEL IN BOOTH:
B. Snowiss, partner
(See also Holt Associates, Inc.)
RESIDING AT: Wade Hampton Motel

SNYDER ..... **Booth 903**
M. R. Snyder Co.
P. O. Box 3341, Charlotte, N. C.

SONOCO ..... **Booth 244**
Sonoco Products Co.
Hartsville, S. C.
EXHIBITING: Complete line of cones, cores, spools, bobbins, folding boxes, and paper specialties.
PERSONNEL IN BOOTH:
C. H. Campbell, vice-pres., sales
C. W. White, dir. of sales
W. M. Carpenter, salesman
C. B. Harper, salesman
W. R. Gunnells, salesman
A. P. Hearon, salesman
P. F. Williams, salesman
W. R. Peacock, salesman
B. H. Biggs, salesman
H. M. Adams, salesman
W. K. Lewis, sales coordinator
J. A. Reagan, Jr., adv. mgr.
RESIDING AT: Greenville Hotel

SOUTHEASTERN LOOM ..... **Booth 130**
Southeastern Loom & Machine Works
P. O. Box 66, Greenwood, S. C.
EXHIBITING: The Maxbo shuttleless loom; Southeastern high-speed shuttle

loom and loom parts; card and drawing coilers; spinning frame pulley spindle drives; centrifugal and gear size pumps; hydraulic presses.
PERSONNEL IN BOOTH:
C. L. Beaudrot, works mgr.
J. Harrison
B. Flynn

SOUTHEASTERN SAFETY .....**Booth 301**
Southeastern Safety Appliances, Inc.
730 Miami Cir., N. E., Atlanta 5, Ga.
EXHIBITING: Ansul dry chemical fire extinguishers, Scott Air-Paks, Davis industrial first aid kits and supplies; Welsh safety goggles and face shields; Miller linemen's and industrial body belts and safety straps; Charleston rubber gloves; Union industrial air sampling instruments.
PERSONNEL IN BOOTH:
G. D. Johnson, pres.
P. H. Ellington, sales mgr.
C. L. Thomas, Jr., sales rep.
G. D. Johnson, Jr., sales rep.
RESIDING AT: Greenville Hotel

SOUTHERN MACHINERY .....**Booth 515**
Southern Machinery Co.
Box 3217, Sta. A, Greenville, S. C.
EXHIBITING FIRST TIME: "Bild-o-Matic," an automatic spinning frame filling builder that is claimed to wind any type of quill for any make of automatic loom; it eliminates the need for rewinding filling for the Draper Magazine.
ALSO SHOWING: The Hunt let-off on a Draper XD loom.
PERSONNEL IN BOOTH:
J. W. Stuart, pres.
E. J. Williams, sales
F. E. Hooper, sales
A. E. Cutting, sales
H. Kennedy, res.
RESIDING AT: Catalina Motor Lodge

SOUTHERN RUBBER .....**Booth 274**
Southern Rubber Co.
360 Ashe St., Greensboro, N. C.

SOUTHERN STATES .....**Booth 266**
Southern States Equipment Corp.
Hampton, Ga.
EXHIBITING FIRST TIME: "Alley-Skat" can dolly for large coiler cans; 24" complete coiler, 42" or 48" high.
ALSO SHOWING: 18" and 20" coilers; coiler conversions; individual card drive; comb box.
PERSONNEL IN BOOTH:
C. W. Walter, vice-pres.
J. Walters, salesman
W. P. Knapp, salesman
W. N. Watkins, salesman
F. Birchfield, salesman
RESIDING AT: Greenville Hotel

SOUTHERN TEXTILE NEWS .....**Booth 313**
"Southern Textile News"
P. O. Box 1569, Charlotte, N. C.

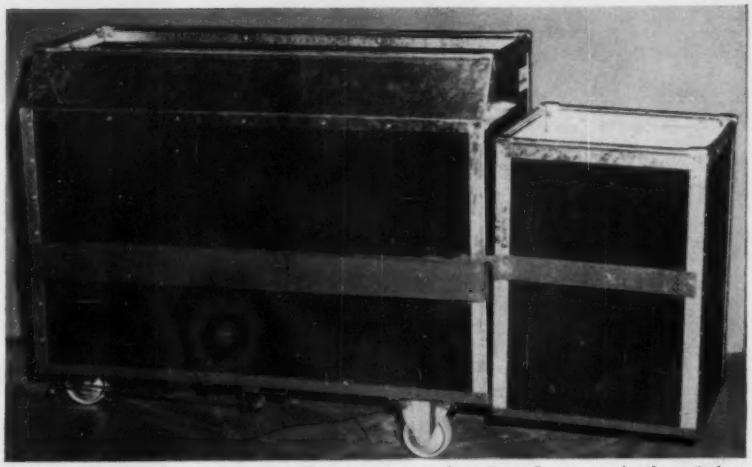
SPAULDING .....**Booth 202**
Spaulding Fibre Co., Inc.
Dover, N. H.
EXHIBITING: Vulcanized fibre roving cans; conditioning boxes; light weight trucks; various sizes of vulcanized fibre quill and doff boxes; "Spauldite" lap rolls.
PERSONNEL IN BOOTH:
A. R. Whitehouse, asst. plant mgr.
D. F. Dawson, Baltimore branch mgr.
B. C. King, Atlanta branch mgr.
RESIDING AT: Colonial Court Hotel

SPINTEX .....**Booth 120**
Spintex Spinnerei-Maschinenbau
Stiehl, Fromm & Co., Fornsbacherstr. 92, Murrhardt/Wurtt., Germany
(See LENKOTEX)

SQUARE D .....**Booth 847**
Square D Co.
4041 N. Richards St., Milwaukee 12, Wis.

STALEY .....**Booth 412**
A. E. Staley Mfg. Co.
Decatur, Ill.

STANDARD CONVEYOR .....**Booth 115-B**
Standard Conveyor Co.
940 Indiana Ave., North St. Paul 9, Minn.
(See ENGINEERING SALES)
EXHIBITING FIRST TIME: The "Escaveyor" for vertical floor-to-floor movement of unit or packaged goods.
PERSONNEL IN BOOTH:
S. R. Brookshire, factory rep.
M. E. Richardson, reg. sales mgr.



Doff truck by Excel, Inc., for use with automatic spoolers, Roto-Coners, and other winders.

STANLEY DOORS .....**Booth 467**
The Stanley Works, Magic Door Div.
New Britain, Conn.
(See HATCHER)

STANLEY STEEL STRAPPING .....**Booth 457**
The Stanley Works, Steel Strapping Div.
New Britain, Conn.

STAUBLI .....**Booth 822**
Gebr. Staubli & Co.
Horgen-Zurich, Switzerland
(See THEILER)

STEARNS ELECTRIC .....**Booth 903**
Stearns Electric Corp.
120 N. Broadway, Milwaukee 1, Wis.
(See SNYDER)

STEARNS MAGNETIC .....**Booth 903**
Stearns Magnetic, Inc.
646 S. 28th St., Milwaukee 46, Wis.
(See SNYDER)

STEEL HEDDLE .....**Booth 137**
Steel Heddle Mfg. Co.
2100 W. Allegheny Ave., Philadelphia 32, Pa.
EXHIBITING: Loom harness equipment for domestic and foreign-made looms; dogwood, compressed and impregnated, fibre, and improved phenolic shuttles; cold-solder, all-metal reeds with new dent configuration for easier passage of yarn obstructions and increased efficiency; quills; picker sticks; drop wires; warp preparation equipment.
PERSONNEL IN BOOTH:
H. W. Fehr, pres.
H. P. Goodwin, sou. div. sales mgr.
S. R. Zimmerman, dist. mgr.
D. L. Batson, dist. mgr.
R. B. Stevens, dist. mgr.
G. D. Macintyre, dist. mgr.
RESIDING AT: Poinsett Hotel & Greenville Hotel

STEIN, HALL .....**Booth 425**
Stein, Hall & Co., Inc.
285 Madison Ave., New York 17, N. Y.
PERSONNEL IN BOOTH:
R. Strasser, exec. vice-pres.
D. Lipman, vice-pres. and sales mgr.
L. F. Costello, mgr. textile dept.
N. H. Nuttall, mgr. Charlotte branch office
E. D. Estes, mgr. Atlanta branch office

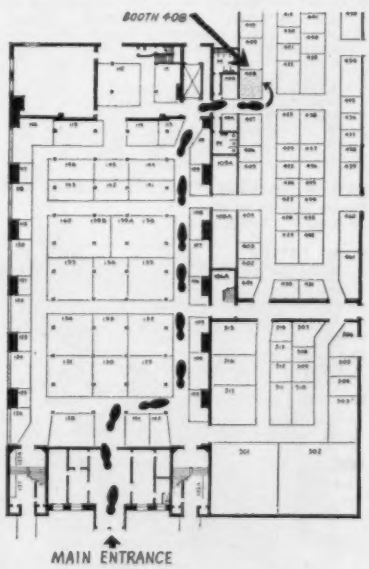
STERLING .....**Booth 216**
Sterling Eng. & Mfg. Co.
173 Gilligan St., Wilkes-Barre, Pa.
EXHIBITING: Self-stacking boards for handling of bobbins, cones, tubes, quills, etc., made of cadmium-plated and stainless steel; aluminum quill boards; self-stacking tube boards with flexible holder for yarn shrinkage; yarn handling trucks.
PERSONNEL IN BOOTH:
G. McGee, vice-pres.
RESIDING AT: Poinsett Hotel

STEWART-WARNER .....**Booth 803**
Stewart-Warner Corp., Alemite Div.
1826 Diversey Parkway, Chicago, Ill.

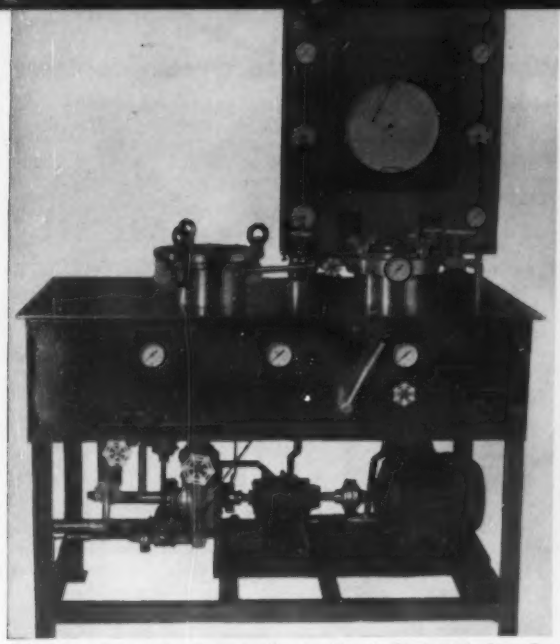
STRANDBERG .....**Booth 504**
Strandberg Engineering Labs., Inc.
225 Summit Ave., Greensboro, N. C.
EXHIBITING FIRST TIME: The Model M-200 portable moisture meter ("Moisture Monitor").
ALSO SHOWING: The Model M-101 moisture indicator for slashers, dryers, and pickers; the Model M-600 moisture control for slashers and dryers.
PERSONNEL IN BOOTH:
C. F. Strandberg, Jr., pres.
W. E. Plemmons, prod. mgr.
C. B. Pederson, rep.
C. A. Matthews, rep.
F. N. Houston, rep.

Continued next page

WELCOME TO BOOTH 408



You are cordially invited to visit with the editors and circulation and business representatives of "Textile Industries." The footprints on the floor plan above show how to find us. Follow them. We'll be glad to see you.—The Editors.



Laboratory dyer to be shown by Gaston County Dyeing Machine Co.

Model DO draw frame will be feature of American Rieter Co. booth.

STURDI-BILT ..... **Booth 480**
Sturdi-Bilt Materials Handling Div. of Union Asbestos & Rubber Co.
332 S. Michigan Ave., Chicago 4, Ill.
(See WRENN)

SUPERIOR BANDS ..... **Booth 272**
Superior Bands
Anderson, S. C.

SUPERIOR BOLSTER ..... **Booth 505**
Superior Bolster Co.
Box 1040, Gastonia, N. C.

SYLVANIA ..... **Booth 414**
Sylvania Lighting Products Div.
Sylvania Electric Products, Inc.
1 - 48th St., Wheeling, W. Va.

TAKK ..... **Booth 337**
The TAKK Corp.
P. O. Box 346, Newark, O.

EXHIBITING FIRST TIME: "Dual Point" static-eliminator bars; "Air Attachments" for old or new TAKK static-eliminator bars to convert to "air" bars.
ALSO SHOWING: Standard line of static control equipment.
PERSONNEL IN BOOTH:
W. E. Krause, pres. and gen. mgr.
W. G. Overman, sales and prom.
W. E. Krause, Jr., sales

TAYLOR INSTRUMENT ..... **Booth 450**
Taylor Instrument Cos.
95 Ames St., Rochester 1, N. Y.

R. M. TAYLOR ..... **Booth 128**
R. M. Taylor Co.
Quakertown, Pa.
(See WATSON & DESMOND)

TERRELL ..... **Booth 482**
The Terrell Machine Co.
P. O. Box 928, Charlotte 1, N. C.

TEXACO ..... **Booth 444**
Texaco, Inc.
135 E. 42nd St., New York 17, N. Y.

TEXIZE ..... **Booth 451**
Texize Chemicals, Inc.
Box 1820, Greenville, S. C.

PERSONNEL IN BOOTH:
C. M. Chalmers, asst. sales mgr.
W. N. Kline, vice-pres., sales mgr.
W. J. Greer, pres.
J. B. League, Jr., vice-pres.
T. D. Greer, mgr. ind. div.
C. H. Crews, Jr., asst. sales mgr. ind. div.

TEXPAK ..... **Booth 311**
Texpak Plastics, Inc.
P. O. Box 87, Rockingham, N. C.
(See DOCKERY)

TEXTILE BULLETIN ..... **Booth 203**
"Textile Bulletin"
218 W. Morehead St., Charlotte, N. C.

TEXTILE GRINDER ..... **Booth 319**
Textile Grinder Co.
Box 501, Gastonia, N. C.

TEXTILE INDUSTRIES ..... **Booth 408**
"Textile Industries" magazine
806 Peachtree St., N.E., Atlanta 8, Ga.

EXHIBITING: The October issue of "Textile Industries;" publications which are available as premiums with subscriptions to this magazine, including the recently published "101 Ways to Weave Better Cloth," "Warp Sizing," "The Supervisor and His Responsibilities," "Draper Loom Fixing," and "Dyeing, Bleaching and Finishing Manual;" reprints of feature articles from the magazine; the most recent issue of the "Buyer's Guide" issue; current issue of "Industrias Textiles," Latin-American edition of "Textile Industries."
PERSONNEL IN BOOTH:
Richard P. Smith, pres.
John C. Cook, vice-pres. & bus. mgr.
George H. Dockray, ed.
J. Frank Guest, mng. ed.
Jesse W. Ellington, assoc. ed.
Milton C. May, assoc. ed.
Stanley M. Suchecki, assoc. ed.
Walter M. Mitchell, Jr., adv. mgr.
Arthur C. Shaw, bus. rep.
William K. Hoffman, bus. rep.
W. Cliff Rutland, bus. rep.
James R. Corgee, bus. rep.
Richard F. Hanrahan, bus. rep.
A.E.C. Smith, bus. rep.
H. Redfern Hollins, dir. circ.
James Denton, circ. rep.
C. P. Dickinson, circ. rep.
J. H. Culber, circ. rep.

TEXTILE SHOPS ..... **Booth 501**
The Textile Shops, Inc.
P. O. Box 1330, Spartanburg, S. C.
(See GRIFFIN)

TEXTILE WORLD ..... **Booth 224**
"Textile World"
330 W. 42nd St., New York 36, N. Y.

TEXTURE ..... **Booth 128**
Textube Corp.
695 Summer St., Stamford, Conn.
(See WATSON & DESMOND)

THEILER ..... **Booth 822**
H. J. Theiler Corp.
Whitinsville, Mass.

EXHIBITING: Staubli single-cylinder dobby, Type LE, mounted on a Ruti Model BALXM loom with a reed space of 82½", equipped with the new Loepfe optical electronic filling bobbin feeler, weaving a leno fabric in two widths, using Frohlich doup heddles and leno

Theiler continued
frames; Staubli dobby on a demonstration frame; Type N card cutting and copying machine; 12-spindle Schweiter automatic filling winder, Type MSL, equipped with dust exhaust system and new parallel bobbin-depositing device; Benninger Type CFA four-roll laboratory padder.
PERSONNEL IN BOOTH:
H. J. Theiler — H. Badertscher
H. Singer — W. Keller
F. Schmid — F. Bolliger
H. Mathey

TOENISSEN ..... **Booth 128**
Ernst Toenissen KG
Mauerkirchnerstr. 86, Munich, Germany
(See WATSON & DESMOND)

TOLEDO PIPE ..... **Booth 141**
The Toledo Pipe Threading Machine Co.
P. O. Box 1678, Toledo, O.

TOLEDO SCALE ..... **Booth 415**
Toledo Scale
Division of Toledo Scale Corp.
1208 Telegraph Rd., Toledo, O.

TON-TEX ..... **Booth 431**
Ton-Tex Corp.
31 Columbus Ave., Englewood, N. J.

EXHIBITING: Spinner and coner belting, loom strapping, card-drive belts, and field vulcanizing equipment.
PERSONNEL IN BOOTH:
T. A. Lombardi, sales mgr.
J. G. Skinner, salesman
D. R. Sellars, salesman
J. P. Norman, salesman
W. W. West, salesman
W. H. Huff, salesman
C. H. Crumpton, salesman
RESIDING AT: Wade Hampton Motel

TOWMOTOR ..... **Booth 849**
Towmotor Corp.
1226 E. 152nd St., Cleveland 10, O.

TRUMETER ..... **Booth 245**
Trumeter Co.
38 W. 32nd St., New York 1, N. Y.

UNION BAG ..... **Booth 350**
Union Bag-Camp Paper Corp.
233 Broadway, New York 7, N. Y.

UNION STEEL ..... **Booth 480**
Union Steel Products Co.
Albion, Mich.
(See WRENN)

U. S. RING TRAVELER ..... **Booth 801**
U. S. Ring Traveler Co.
159 Aborn St., Providence, R. I.

What you'll see at the Greenville Show

U. S. RUBBER ..... **Booth 317**
U. S. Rubber Co., Mechanical Goods Div.
1230 Ave. of the Americas, New York 20, N. Y.

USTER ..... **Booth 469**
Uster Corp.
2516 Wilkinson Blvd., Charlotte 8, N. C.
EXHIBITING FIRST TIME: "Spectomatic" electronic slubcatcher, operating on two winders.
ALSO SHOWING: "Ustermatic" warp tying machine, evenness testers for spun and continuous filament yarns, automatic single-strand strength tester, imperfection indicator, "Lap Varimeter," "Recordograph" for tension measurement, and fiber cohesion tester.
PERSONNEL IN BOOTH:
W. B. Floyd, sales mgr.
H. Winiger, marketing mgr.
W. Boyd — F. Jaggi
V. H. Brackman — B. E. Sweet

VALENTINE ..... **Booth 429**
Ira M. Valentine
P. O. Box 11991, Atlanta 5, Ga.
EXHIBITING: Motorized speed reducers, and complete line of spur, helical, and worm gears of American Stock Gear Div.; speed reducers of George P. Dorris Co.; blue print specials, spiral bevels, hypoid bevels, and special splined shafts.
PERSONNEL IN BOOTH:
I. M. Valentine, sou. dist. mgr.
L. Tansey, asst. sales mgr., G. P. Dorris Co.
RESIDING AT: Flamingo Motel

VAN VLAANDEREN ..... **Booth 826**
Van Vlaanderen Machine Co.
370 Straight St., Paterson 3, N. J.

VEEDER-ROOT ..... **Booth 107**
Veeder-Root, Inc.
70 Sargeant St., Hartford 2, Conn.
EXHIBITING: Complete line of textile counting devices for production and incentive systems, including electronic "Count-Paks" and predetermining counters for greater counter precision; pick and hank counters for looms and preparatory equipment; predetermining counters for yardage control; yardage counters for inspection equipment; and "Vary Tally" for use in inspection and quality control.
PERSONNEL IN BOOTH:
G. H. Anthony, chmn. exec. com.
R. C. Conant, sou. dist. mgr.
F. J. Swords, east. sales mgr.
H. B. Huff, sou. dist. eng.
R. F. Quinn, mgr., adv. & sales prom.
A. E. Kallinich, vice-pres.
C. C. Lombardi, sales mgr., counting devices
J. D. Warfield, marketing mgr.
R. G. Perfect, hdq. sales mgr.
R. L. Stoner, dist. eng.

VERMONT SPOOL ..... **Booth 128**
Vermont Spool & Bobbin Co.
Box 486, Burlington, Vt.
(See WATSON & DESMOND)

WAK ..... **Booth 231**
WAK Industries
P. O. Box 3095, Charlotte 3, N. C.

WALKER ..... **Booth 228**
Charles Walker & Co. Ltd.
Beta Works, Leeds 1, England
(See SCHACHNER)

WALTON ..... **Booth 128**
Walton Laboratories, Inc.
1186 Grove St., Irvington, N. J.
(See WATSON & DESMOND)

WARREN BELTING ..... **Booth 227**
Warren Belting Co.
331 Arctic St., Worcester, Mass.
(See HURLEY & HARRISON)

WARREN ENGINEERING ..... **Booth 323**
Warren Engineering Co.
P. O. Box 8, Broadway, N. J.
EXHIBITING FIRST TIME: Warren-Wynn straight - through diaphragm valve.
ALSO SHOWING: Reducing valves, temperature regulators, diaphragm control valves, pressure gauges, strainers, electric-motor-operated valves and thermometers.
PERSONNEL IN BOOTH:
T. P. Bruno, eng. — E. Streng, sales eng.
RESIDING AT: Poinsett Hotel

WATSON & DESMOND ..... **Booth 128**
Watson & Desmond, Inc.
220 W. 4th St., Charlotte, N. C.
EXHIBITING: Roller bearing spindles of Zinser-SKF; "Prima" flyers of C. Eugen Maier GmbH; spinning and twister rings of Reiners & Furst; yarn inspection machines of Ernst Toenissen KG; "Dubo" spindle lock washers of G. Dikkers; paper spinning tubes, quills, and roving bobbins of Textube Corp.; dye tubes and headless package shipping tubes of New England Paper Tube Co.; antifriction top rolls, and "Ny-Pre-Lon" cradles for spinning and roving of Progressive Engineering, Inc.; shuttles of Watson-Williams Mfg. Co.; wool spools, and large bobbins and cones of Vermont Spool & Bobbin Co.; wood quills and fibre-head spools of H & P Spool & Bobbin Co.; humidifiers of Walton Laboratories, Inc.; plastic yarn carriers of Modern Plastics Engineering Corp.; shuttle fur of R. M. Taylor Co.; and roving bobbin holders of Winslow, Inc.
PERSONNEL IN BOOTH:
S. P. V. Desmond — E. E. Ball
C. E. Watson — H. D. Lanier
J. A. Olwell — R. Norman
R. V. McPhail — R. Patton
J. Wyatt — J. M. Gayle
RESIDING AT: Catalina Motor Lodge

WATSON-WILLIAMS ..... **Booth 128**
Watson-Williams Mfg. Co.
Millbury, Mass.
(See WATSON & DESMOND)

WEST ..... **Booth 340**
West Chemical Products, Inc.
West Disinfecting Div.
42-16 West St., Long Island City 1, N. Y.

WESTINGHOUSE AIR BRAKE ..... **Booth 264**
Westinghouse Air Brake Co.
Industrial Products Div., P. O. Box 36, Wilmerding, Pa.
(See LIVINGSTON & HAVEN)

WESTINGHOUSE ELECTRIC ..... **Booth 423**
Westinghouse Electric Corp.
P. O. Box 868, Pittsburg 30, Pa.
EXHIBITING: Adjustable-speed drives, electric motors, motor controls, and gearing.
PERSONNEL IN BOOTH:
F. T. Benner, eng.

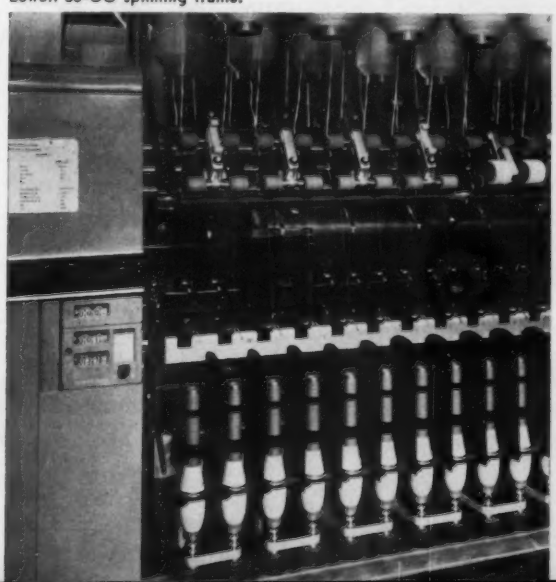
WESTINGHOUSE LAMP ..... **Booth 406**
Westinghouse Electric Corp.
Lamp Div.
1216 W. 58th St., Cleveland 2, O.
EXHIBITING FIRST TIME: New-shape "Eye Saving" lamps.
ALSO SHOWING: Extended-service lamps and "Super-Hi" fluorescent lamps.
PERSONNEL IN BOOTH:
H. J. Thomas, reg. sales mgr.
W. J. Johnston, dist. sales mgr.
J. D. Mitchell, reg. eng.
E. M. Douglas, sales rep.
R. D. Thornton, Jr., sales rep.
S. V. Taylor, sales rep.
RESIDING AT: Holiday Inn

WEST POINT ..... **Booth 804**
West Point Foundry & Machine Co.
301 W. 10th Street, West Point, Ga.
EXHIBITING: Latest model of the "Pacesetter" multicylinder slasher; Model 594 corduroy-cutting machine; "Nemo" jet cooker; size pump; and a drying range and padder, West Point's entry into the wet finishing machinery field.
PERSONNEL IN BOOTH:
R. L. Mundhenk, sales mgr.
R. V. Lee, asst. sales mgr.
C. G. Holt, sales rep.
B. B. Brown, Jr., sales eng.
R. C. Monk, sales rep.
RESIDING AT: Greenville Hotel

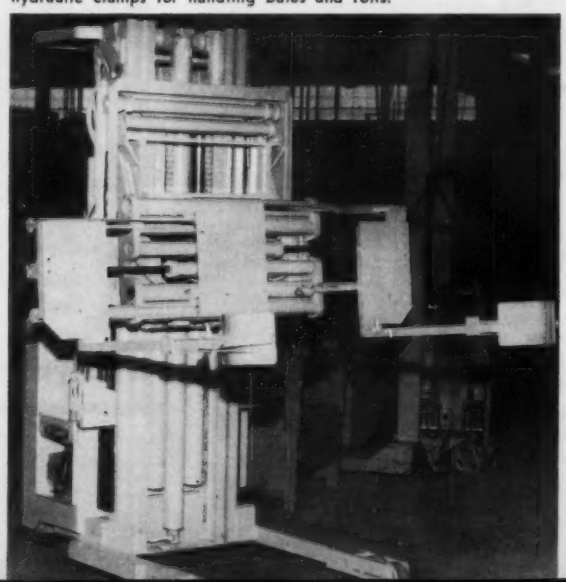
WHEEL TRUEING ..... **Booth 110-B**
Wheel Trueing Tool Co.
3210 W. Davison Ave., Detroit 38, Mich.
(See PENNELL)

WHITIN ..... **Booth 819**
Whitin Machine Works
Whitinsville, Mass.
EXHIBITING: Spinning changeovers and changeover material in operation on two 36-spindle spinning frames, an F2 and an F3 Model. One frame will be equipped with the new Whitin high-angle roll stands featuring the UT3 top arm on one side and the new

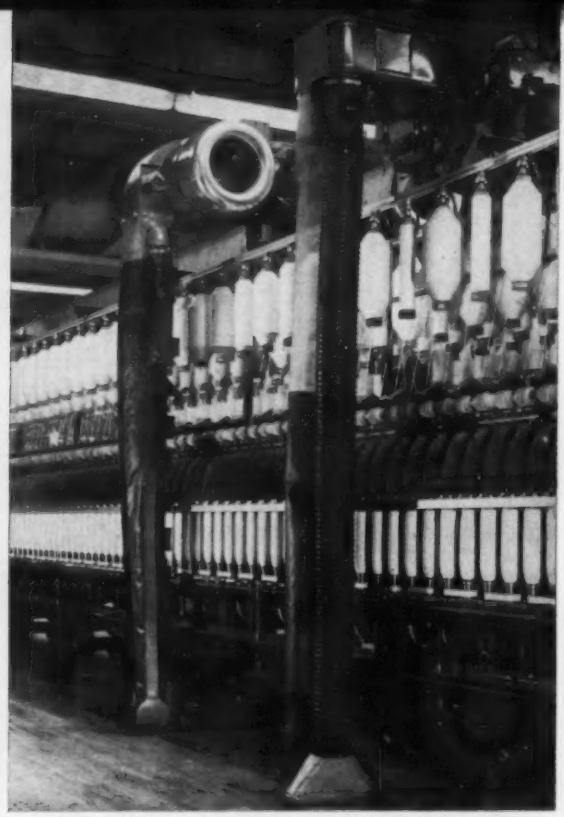
Cotton-McCauley will show "Cleanguide" drafting system on a Saco-Lowell SJ-CG spinning frame.



Narrow-aisle industrial electric truck by The Raymond Corp. has hydraulic clamps for handling bales and rolls.



Roberts Co. will exhibit "arrow" WM-I worsted-system frame.



Bahnson's "Cross-Jet" frame cleaner with "Vacu-Pak" sweeper.

Whitin continued

Whitin double-apron drafting system with the long bottom apron on the other. One side of the second frame will be equipped with 45° roll stands and the Whitin STA system top weighting, including the new Casablancas GX2 cradle. The second side of this frame will demonstrate the conversion of a comparative long bottom apron system to the Whitin STA-R type of double-apron system. Also on display will be various other components used in changeover of older Whitin and other frames, including spindles, rings, ring holders, hand brakes, bobbin holders, etc.

WHITINSVILLE ..... **Booth 209**

Whitinsville Spinning Ring Co.
Douglas Rd., Whitinsville, Mass.

EXHIBITING: Complete line of spinning and twister rings and accessories, including "Anti-Wedge" and "Back-slope" types. Special emphasis will be placed on rings for automatic lubrication.

PERSONNEL IN BOOTH:
G. T. Brown, vice-pres. & secty.
W. P. Dutemple, sales mgr.
W. K. Shirley, sales rep.
H. L. Williams, sales rep.
C. G. Stover, sales rep.

RESIDING AT: Colonial Court Hotel

WILLCOX ..... **Booth 902**

Willcox & Gibbs Sewing Machine Co.
214 W. 39th St., New York 18, N. Y.

WINSLOW ..... **Booth 128**

Winslow, Inc.
Rt. 3, Box 314, Greenville, S. C.
(See WATSON & DESMOND)

WINSMITH ..... **Booth 903**

Winsmith, Inc.
10 Eaton St., Springville, N. Y.
(See SNYDER)

WOLTERS ..... **Booth 206**

Peter Wolters Kratzenfabrik & Maschinenfabrik GmbH & Co.
Postfach 245, Mettman/Rhld., Germany
(See ROY)

WOOD'S ..... **Booth 242-B**

T. B. Wood's Sons Co.
5th Ave., Chambersburg, Pa.

WRENN ..... **Booth 480**

Wrenn Bros.
P. O. Box 10186, Charlotte 2, N. C.

EXHIBITING FIRST TIME: "Mobile Shop" by The Colson Corp., designed to take care of emergency maintenance problems.

ALSO SHOWING: Lift trucks by Hyster Co.; storage racks by Sturdi-Bilt Materials Handling Div.; "Palletainers" by Union Steel Products Co.; and casters by The Colson Corp.

PERSONNEL IN BOOTH:
P. Wrenn, vice-pres.
G. Wrenn, vice-pres.
R. Ward, asst. sales mgr.
P. Pfeifer, sales mgr.
R. Davis, sales prom.

RESIDING AT: Greenville Hotel

YALE & TOWNE ..... **Booth 470**

The Yale & Towne Mfg. Co.
11000 Roosevelt Blvd., Philadelphia 15, Pa.

EXHIBITING FIRST TIME: Rider-type sit-down electric truck with infinite speed control and lifting speeds up to 150 fpm—low silhouette and compact design, turns within its 57" length; gasoline and LP-gas trucks in 3000-, 4000-, and 5000-lb capacities in both cushion and pneumatic-tire types—3000-lb capacity model has 70" turning radius; lightweight electric hoists (capacities up to two tons) in hook or trolley types; air hoists (1000- and 2000-lb capacities) for extremely close load spotting and for work in explosive atmospheres; and the Load King trolley hand hoist.

ALSO SHOWING: "Load King" hand hoist; "Extend-A-Load" warehouser electric truck; and Model D "Pul-Lift" ratchet hoist.

PERSONNEL IN BOOTH:
J. H. Brown, mgr. of adv., publ & sales prom.
N. C. Baker, mgr., marketing svcs.
R. H. Marsh, reg. sales mgr. -trucks
J. P. Coleman, Coleman Co., Inc.

Yale & Towne continued

C. R. Dean, gen. mgr.
L. W. Jander, gen. sales mgr.
L. P. Jones, hoist dist. sales mgr.

RESIDING AT: Flamingo Motel

YEOMANS ..... **Booth 449**

Yeomans Textile Machinery Co.
P. O. Box 1661, Spartanburg, S. C.

EXHIBITING: Scharer fully automatic high-speed filling winder each for cotton, wool, and filament yarns—the latter is equipped with pinboard stacking device; a fourth (as above) equipped for Draper magazine end use; and a pineapple cone winder.

PERSONNEL IN BOOTH:
J. Scharer, pres.
M. Jent, sales eng.
O. Zollinger, tech.
K. Laager, tech.
C. L. Yeomans, U. S. agent
C. H. Turner, U. S. agent

RESIDING AT: Poinsett Hotel

YOUNG ..... **Booth 257**

F. A. Young Machine Co.
York Road, Gastonia, N. C.

EXHIBITING FIRST TIME: The VY5 vertical system that drafts from 20 to 650 and which will be in operation on drawing sliver and on roving from 14" x 7" packages.

ALSO SHOWING: Micro-electrical aligning equipment that cuts element times in checking, aligning, and leveling (accuracy to 0.005"). NYAF changeovers with Casablanca and Roth elements; air-flo umbrella creels; all types of repairs to rolls, flyers, spindles, and flyer pressers (both conventional and drop), and flyer conversions to larger packages.

ZINSER ..... **Booth 128**

Zinser Textilmaschinen GmbH
Schliessfach 27, Ebersbach (Fils), Germany
(See WATSON & DESMOND)

Here's your handy floor plan of Textile Hall

Tear it out NOW and take it with you to Greenville

Alphabetical list of exhibitors

FIRM	BOOTH
ABC	904-A
Abbott	813
Abington	829
Acme Chain	903
Acme Steel	356
Acme Steel Strapping	517
Acoustica	506
Adams	447
Chet Adams	241
Addressograph	262
Akron Spool	247
Aldrich	269
Allen	101
Allen-Bradley	413
Allentown Bobbin	316
Allied Chemical	262
Louis Allis	511
Allis-Chalmers	142
American Air Filter	434
American Lava	463
American Moistening	840
American MonoRail	111
American Pamcor	125
American Pulley	479
American Rieter	820
American Safety Table	234
American Stock Gear	429
American Viscose	220-B
Textile Reporter	225
Anheuser-Busch	513
Armstrong Cork	816
Armstrong Machine	439
Ashworth	122
Atkinson, Haserick	817
Atlanta Brush	420
Bahan	140
Bahnson	830
Baker	834
Bal	838
Band-It	321
Barber-Colman	254
Bassick	411
Batson	223
Benninger	822
Best	268
Birch	248
Birdie	903-A
Booth	464
Boston Gear	212
Boston Woven Hose	102-A
Bouligny	474
Bowen-Hunter	212
Brainerd Steel	477
Brown & Sharpe	264
Bullard Clark	422
Burlap Tubing	325
Burlington Mills	432
Cable Carriers	364
Cameron & Barkley	275
Carolina Belting	217
Carolina Brush	309
Carolina Fiberglass 335-A,	900
Carolina Radio	328
Carolina Supply	230
A. B. Carter	134
Cen-Tennial	134
Center Chemical	304
Chandler	350
Chavis	115-A
Chesterton	228
Chicago Tramrail	904
Clark-Cutler-McDermott	449
Clark Door	338
Clark Equipment	475
Clemson	323-A
Cleveland Tramrail	115-B
Clinton Corn	205
Coats & Clark	512
Cocker	836
Colson	480
Cometsa	908
Compressor	905-B
Continental-Diamond	461
Continental Tapes	341
Corn Products	441
Cotton-McCauley	828
Crabtree	339
Creamery	127
Crompton & Knowles	139
Cronland	106-A
Cross	218
Crown	834
Curtis & Marble	235
Daily News Record	210
Darnell	212
Dart	459
Davis & Furber	476
Davison	E. Lounge
Dayco	138
Dikkers	128
Dinsmore	234
Dixie Bearings	416
Dixie Bobbin	432
Dixon Corp.	850
Joseph Dixon	332
Dockery	311
Dodge	403
Dorris	429
Draper	132
Durant	903
Eaton	506
Eclipse	212
Economy	905
Edda	129
Electro	506
Engineered Plastics	846
Engineering Sales	115-B
Equipto	305
Esso	472
Exact Weight	206
Excel	233
Extremultus	126
Fairbanks	459
Fairbanks, Morse	459
Faultless	473
Federal Pacific	108
Felters	349
Fenwal	426
Finnell	110
Fisher	314
Fletcher	807
Foster	827
Foulds	227
Foxboro	405
Frontier	903-A
Fuller	264
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Garland	106
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Gates	443
Gault	354
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Globe Gear	903
Glover	432
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Goodyear	834
Graf	227
Graton & Knight	507
Great American	106-A
Greenville Textile	212
Griffin	501
Gulf	211
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Harnisch	120
Hatcher	467
Hayes	433
Heany	514
Herr	267
Hile	426
Hill	358
Hilliard	903
Hollister-Moreland	234
Holt	432
Hotwatt	426
Howard	252
Howe	448
Hubinger	501
Hunter	465, 824
Hurley & Harrison	227
Hyatt	104
Hyster	480
Ideal	239
Ilg	241
Industrial Coatings	214
Industrial Dryer	466
Instruments	426
Inter-Con-Tex	432
IBM	460
ICS	336
Industrias Textiles	408
Jacobs Brothers	334
E. H. Jacobs	422
Jamesbury	483
Jenkins Bros.	453
Jenkins Metal	838
Johnson Corp.	437
S. C. Johnson	307
Kanegafuchi	905
Keever	407
Kellogg	354
Kenyon	508
Keystone	402
Kidde	478
Kluttz	110-A
Lambeth	222
Lane	212
La Salle	352

FIRM	BOOTH
Leagu	
Leeso	
Lenk	
Leste	
Linco	
Lindl	
Liver	
Livin	
Livin	
Locky	
Loepf	
Lowe	
MB	
Machi	
Magn	
Maier	
Mann	
Manto	
Marsh	
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Meade	
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Merro	
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Mode	
Mode	
Moffa	
Monro	
Morto	
Moto-	
Mount	
Murph	
Nation	
Nation	
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Nation	
Fibe	
New	
New	
New	
Nilfisk	
Noble	
Nocke	
Norris	
Nuttin	
O-M	
Oil-Dy	
Olney	
Ore-L	
Paddo	
Parks	
Parks-	
Patter	
Payson	

21st Southern Tex

TEXTILE HALL–GR

October 3-

SECOND FLOOR
Booths 201-275

rs and their booth numbers

FIRM	BOOTH
League	106-A
Leesona	810
Lenkotex	120
Lestershire	212
Lincoln	510
Lindly	827
Livermore	108-A
Livingston & Haven	264
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Lockwood Greene	220-A
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Mann	120
Manton-Gaulin	818
Marsh	229
Marshall & Williams	249
Master	144
Mathis	310
Matrix	901
Maxbo	129
McDonough	246
McGraw-Edison	905-A
Meadows	812
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Medley	907
Merrow	234
Metlon	271
Mettler	302
3M	845
Minnesota Paints	326
Mitcham	329
Mitchell-Bissell	430
Modern Plastics	128
Modern Textiles	121
Moffatt	265
Monroe	343
Morton Salt	509
Moto-Truc	834
Mount Hope	114
Murphy	223
National Cash Register	365
National Plastics	449
National Ring Traveler	213
National Starch	445
National Ultrasonic	341
National Vulcanized Fiber	212, 832
New Departure	146
New England Paper Tube	128
New York & New Jersey	109
Nilfisk	320
Noble	223
Nocker	206
Norris	432
Nutting	115-B
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Oil-Dyne	264
Olney	446
Ore-Lube	341
Paddock	442
Parks	227
Parks-Cramer	502
Patterson-Kelley	360
Payson-Harris-Reed	838
Penick & Ford	427
Pennell	110-B
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Permacel	335
Perolin	361
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Piedmont	322
Pioneer	212
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Powers	355
Precision	409
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Reliance	144
Rhoads	471
Rice	432
Ridge Tool	435
Rieter	820
Roberts	808
Rock	908
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Rose	207
Ross-Meehan	303
Rotherm	215
Roy	206
Rudnick	905
Ruti	822
SACM	907
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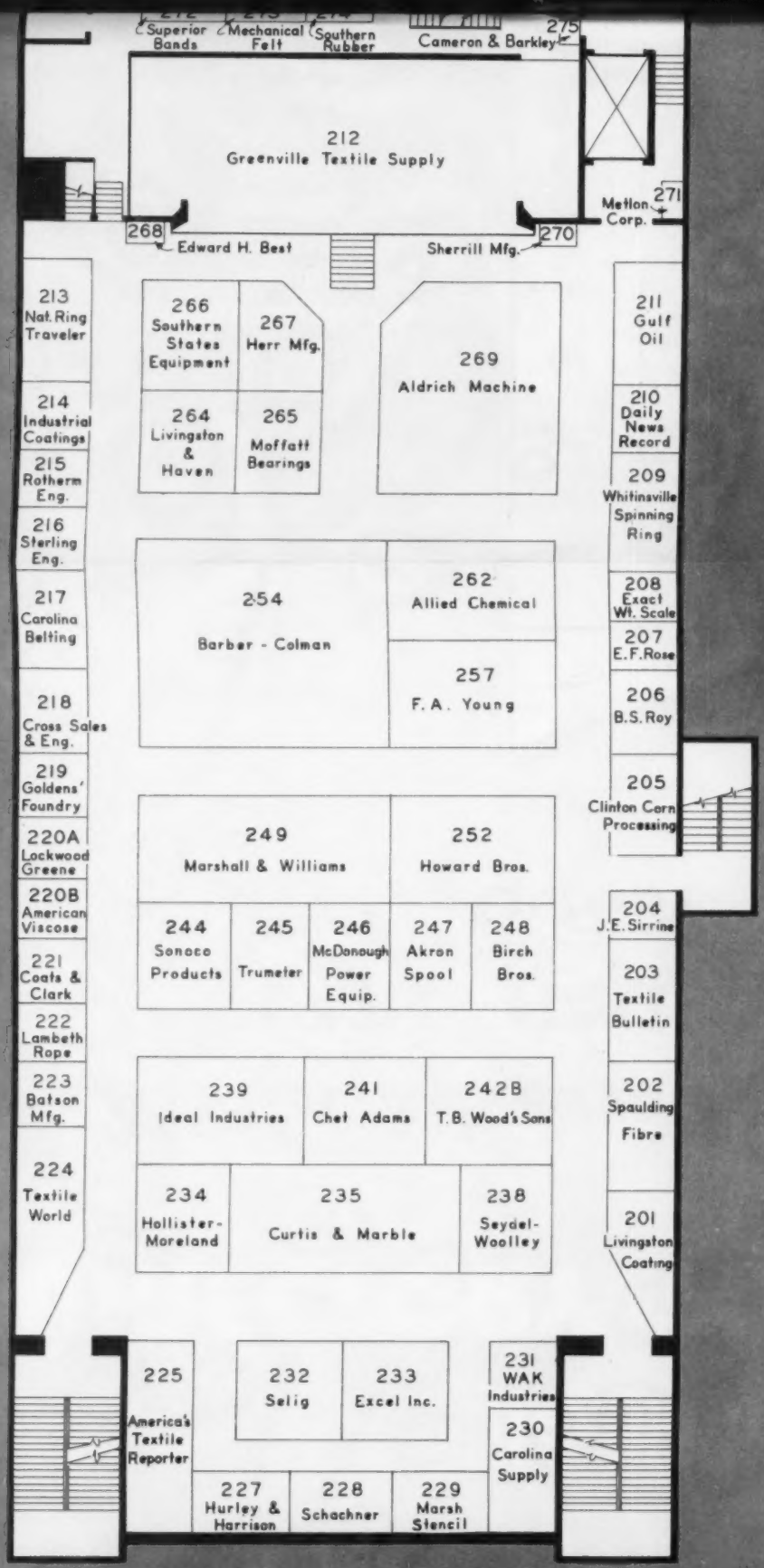
Snowiss	432
Snyder	903
Sonoco	244
Southeastern Loom	130
Southeastern Safety	301
Southern Machinery	515
Southern Rubber	274
Southern States	266
Southern Textile News	313
Spaulding	202
Spintex	120
Square D	847
Staley	412
Standard Conveyor	115-B
Stanley Doors	467
Stanley Steel Strapping	457
Staubli	822
Stearns Electric	903
Stearns Magnetic	903
Steel Heddle	137
Stein, Hall	425
Sterling	216
Stewart-Warner	803
Strandberg	504
Sturdi-Bilt	480
Superior Bands	272
Superior Bolster	505
Sylvania	414
Takk	337
Taylor Instrument	450
R. M. Taylor	128
Terrell	482
Texaco	444
Texize	451
Texpak	311
Textile Bulletin	203
Textile Grinder	319
Textile Industries	408
Textile Shops	501
Textile World	224
Textube	128
Theiler	822
Toenissen	128
Toledo Pipe	141
Toledo Scale	415
Ton-Tex	431
Towmotor	849
Trumeter	245
Union Bag	350
Union Steel	480
U. S. Ring Traveler	801
U. S. Rubber	317
Uster	469
Valentine	429
Van Vlaanderen	826
Veeder Root	107
Vermont Spool	128
WAK	231
Walker	228
Walton	128
Warren Belting	227
Warren Engineering	333
Watson & Desmond	128
Watson-Williams	128
West	340
Westinghouse Air Brake	264
Westinghouse Electric	423
Westinghouse Lamp	406
West Point	804
Wheel Trueing	110-B
Whitin	819
Whitinsville	209
Willcox	902
Winslow	128
Winsmith	903
Wolters	206
Wood's	242-B
Wrenn	480
Yale & Towne	470
Yeomans	449
Young	257
Zinser	128

extile Exposition

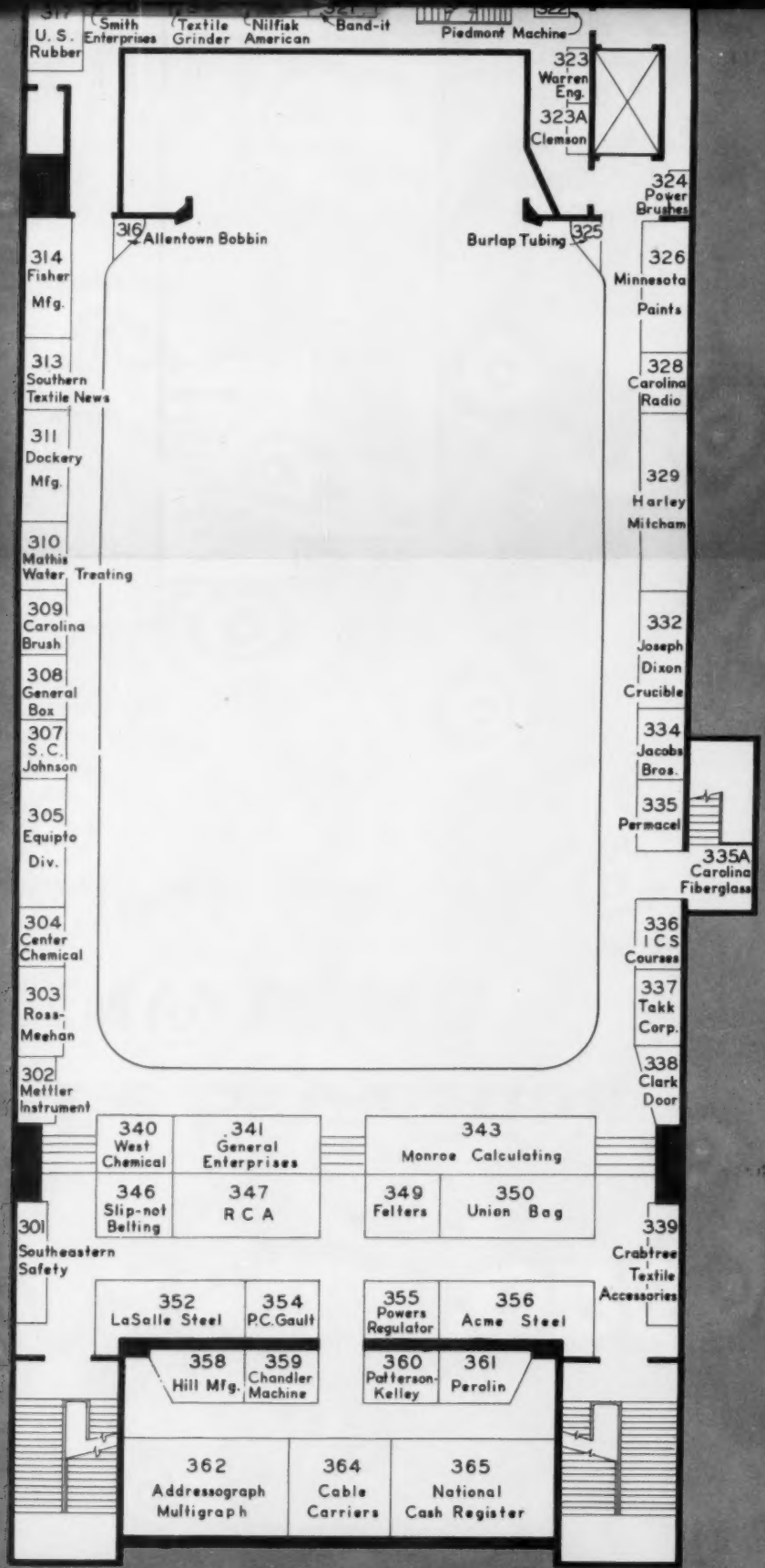
REENVILLE, S. C.

3-7, 1960

BALCONY
Booths 301-365



For Ground Floor,



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Textile In

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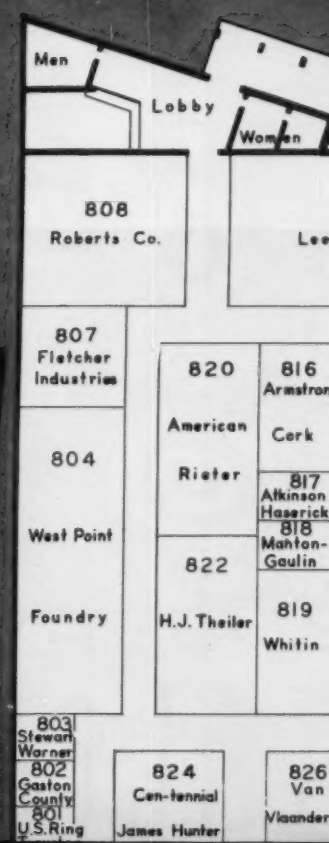
TEXTILE HALL–G

October 3



GROUND FLOOR
Booths
101-146
401-483
501-517
801-850
ACROSS WASHINGTON STREET
900-909

For Second Floor and Balcony, see other side

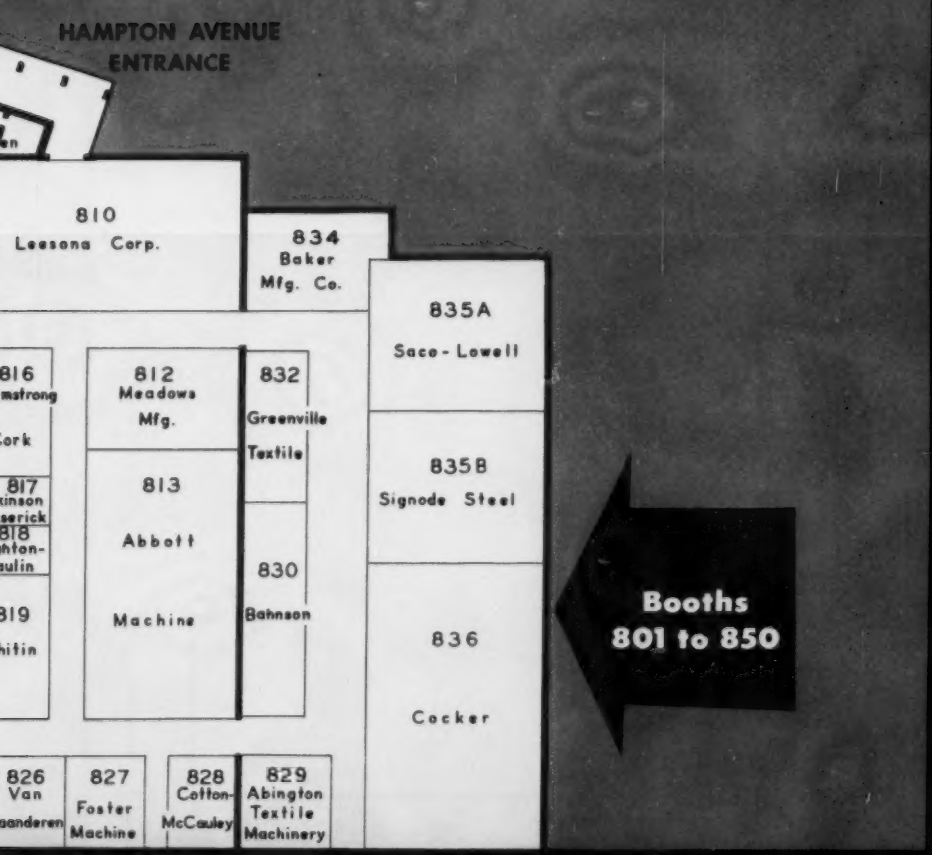
Industries

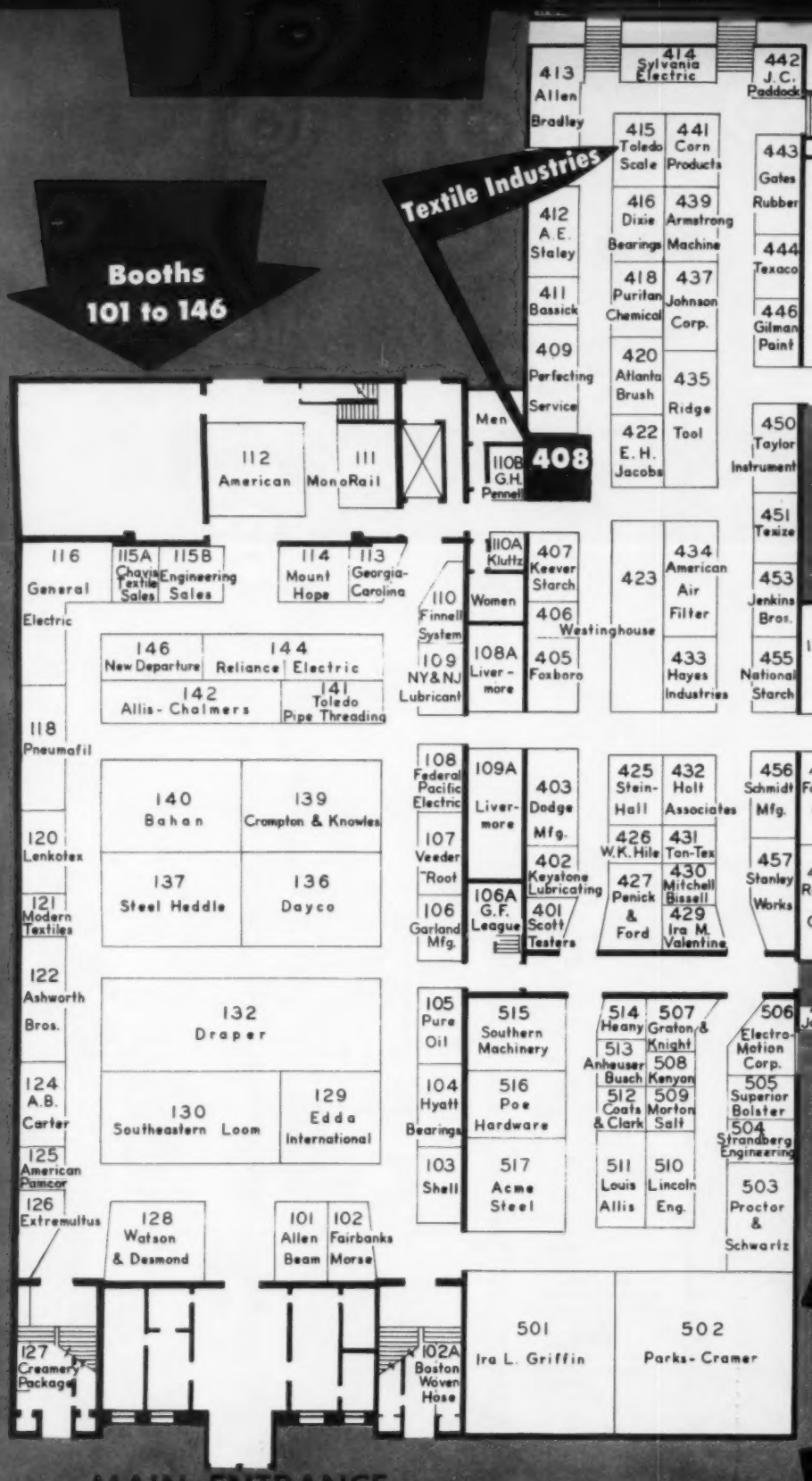
O EXHIBITORS

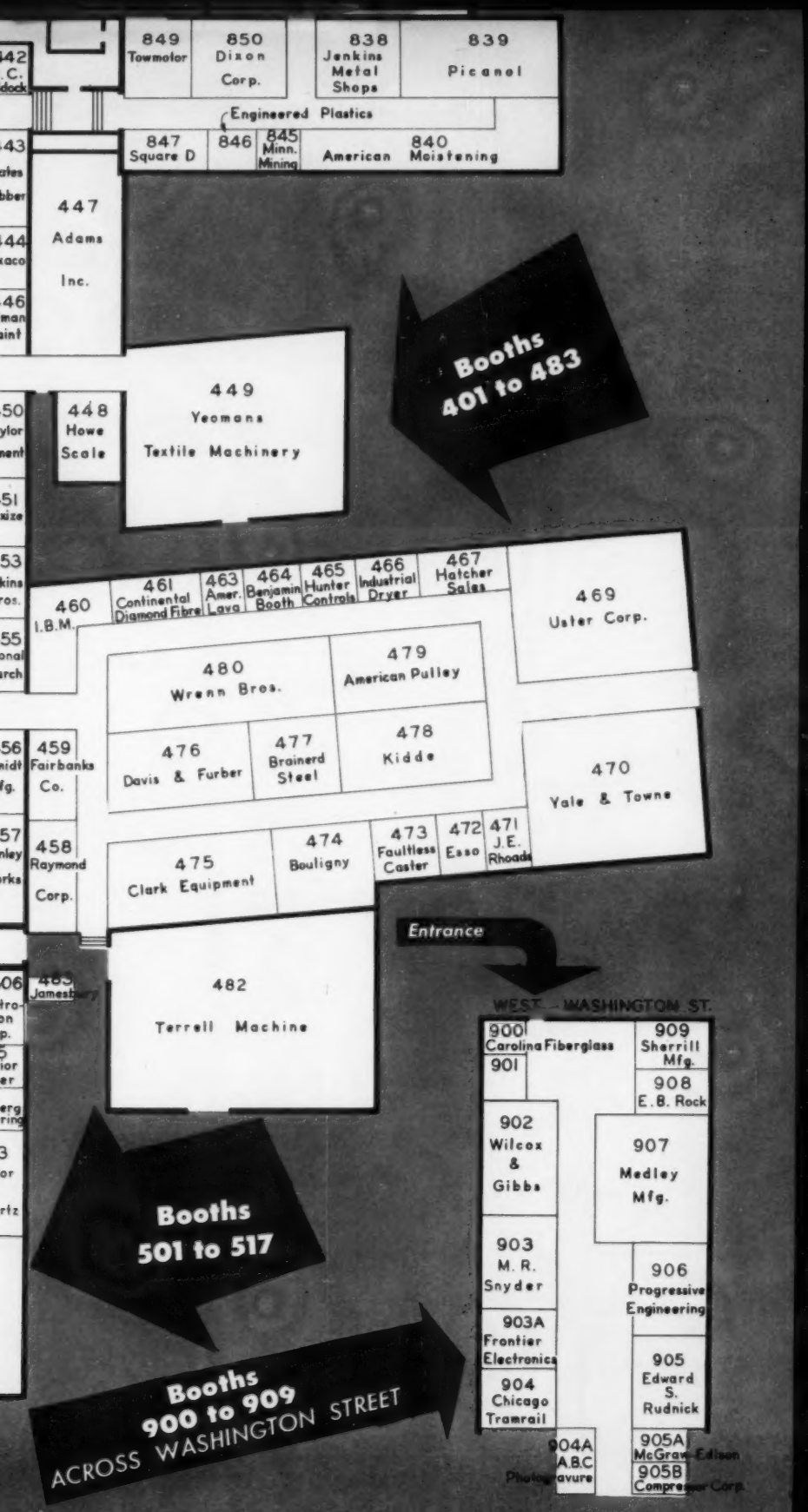
extile Exposition

GREENVILLE, S. C.

3-7, 1960




Booths
101 to 146
Textile Industries
408
413 Allen Bradley
414 Sylvania Electric
442 J.C. Paddock
415 Toledo Scale
441 Corn Products
443 Gates Rubber
412 A.E. Staley
416 Dixie Bearings
439 Armstrong Machine
444 Texaco
411 Bassick
418 Puritan Chemical
437 Johnson Corp.
446 Gilman Paint
409 Perfecting Service
420 Atlanta Brush
435 Ridge Tool
422 E.H. Jacobs
450 Taylor Instrument
112 American
111 MonoRail
Men
1108 G.H. Pennell
451 Texize
116 General Electric
115A Chavis Textile Sales
115B Engineering Sales
114 Mount Hope
113 Georgia-Carolina
110A Kluttz
407 Keever Starch
423
434 American Air Filter
453 Jenkins Bros.
110 Finnell System
Women
406 Westinghouse
146 New Departure
144 Reliance Electric
108A Liver-more
405 Foxboro
433 Hayes Industries
455 National Starch
142 Allis-Chalmers
141 Toledo Pipe Threading
109 NY&NJ Lubricant
118 Pneumafil
108 Federal Pacific Electric
109A Liver-more
403 Dodge Mfg.
425 Stein-Hall
432 Holt Associates
456 Schmidt Mfg.
140 Bahan
139 Crompton & Knowles
107 Veeder Root
426 W.K. Hile
431 Ton-Tex
120 Lenkotex
137 Steel Heddle
136 Dayco
402 Keystone Lubricating
427 Penick & Ford
430 Mitchell Bissell
457 Stanley Works
121 Modern Textiles
106A G.F. League
401 Scott Testers
429 Ira M. Valentine
106 Garland Mfg.
122 Ashworth Bros.
132 Draper
105 Pure Oil
515 Southern Machinery
514 Heany
507 Graton & Knight
506 Electro-Motion Corp.
513 Anheuser Busch
508 Kenyon
124 A.B. Carter
130 Southeastern Loom
129 Edda International
104 Hyatt Bearings
516 Poe Hardware
512 Coats & Clark
509 Morton Salt
505 Superior Bolster
504 Strandberg Engineering
125 American Paincor
103 Shell
517 Acme Steel
511 Louis Allis
510 Lincoln Eng.
503 Proctor & Schwartz
126 Extremultus
128 Watson & Desmond
101 Allen Beam
102 Fairbanks Morse
501 Ira L. Griffin
502 Parks-Cramer
127 Creamery Package
102A Boston Woven Hose
MAIN ENTRANCE
West Washington Street
For Second Floor and Bal



Balcony, see other side

fabric structure and wash-and-wear

Influence of fabric structure on tear strength of resin-treated cotton fabrics

by E. James Stavrakas
Senior Research Associate
and Milton M. Platt
Associate Director
Fabric Research Laboratories, Inc.

Exclusive*

IT HAS generally been conceded that the tear strength of cotton fabrics is adversely affected by resin treatment. Thus the current emphasis on wash and wear cottons has created a demand for research aimed at improving the tear strength of cotton fabrics. In this work the potential improvements to be realized by variations in yarn and fabric structure were systematically investigated. However, in the course of the research other means of achieving this end suggested themselves as potential areas for future study. Notably, the reductions in tear strength occasioned by the preparatory finishing treatments were of such orders of magnitude that studies in this area would seem to be warranted.

The over-all plan of the research involved the following areas of investigation: an analytical determination of the causes of loss in tear strength due to resinating; a theoretical and empirical determination of modifications in yarn and fabric properties required to obtain improved tear strength; design, production, and evaluation of experimental fabrics to assess the validity of the preceding determination; and the resin treatment of experimental fabrics and comparison of tear characteristics with their nonresinated counterparts.

In the present work the tongue tear (single rip) test was selected as the method of characterizing tear strength of fabrics. There are several reasons which recommend the tongue tear method for use in this work. Foremost among them is the ability of the method to provide information concurrently on a number of yarn and fabric properties—componets of the complex system of fabric deformations which in interaction largely determine the tear characteristics of any material.

Such data as the upper peak load, the load drop per peak, the average number of threads rupturing per peak, the tear energy per inch of tear, the effective spring constant of the specimen being loaded, the spring constant of the specimen if the tails are of zero length, etc., are examples of the variety of information gleaned from a tongue tear test. Moreover, as Teixeira et al (1)[1] pointed out, it has the advantage of imposing a load on the fabrics which causes a deformation, and a resistance to this deformation, more characteristic of the material as a fabric than of the sum of the properties of the yarns of which the fabric is constructed.

This action simulates many service failures which involve some sort of a propagated failure through the fabric structure. Past salvage studies of field garments by the Office of the Quartermaster General showed that tear strength was a prime consideration in the life of raincoats and ponchos, and that a preponderance of service tears were analyzable as tongue-type tears.

MECHANISM OF TEAR

From a scientific point of view, the work of Krook and Fox (2) on the mechanics of tear was a not-

*Full text of paper presented at the 1960 Cotton Research Clinic. This is the concluding installment of the proceedings, exclusive publication of which began in the July, 1960, issue of TEXTILE INDUSTRIES. The 13 articles are to be reprinted in booklet form, and reprints will be available free upon request to the National Cotton Council, sponsor of the Clinic, or TEXTILE INDUSTRIES.—The Editors.

The accompanying article (pages 141-1) is a report of research conducted under contract with the U. S. Department of Agriculture and authorized by the Research and Marketing Act of 1946. The contract was supervised by the Southern Utilization Research and Development Division of the Agricultural Research Service. Three phase reports covering all of this work will be published in Agricultural Research Service Publication Series. They will be numbered ARS 72-18, ARS 72-19, and ARS 72-20 and will be available from the Southern Division, P. O. Box 19687, New Orleans 19, La.

[1] Numbers in parentheses designate references at the end of the paper.

Speakers at the final session of the eleventh Cotton Research Clinic were (l to r): **F. F. Fornes,** of the Institute of Textile Technology, Charlottesville, Va.; chairman of the session, **Richard Tuttle** of Fieldcrest Mills, Spray, N. C.; **Franklin E. Newton** of the U. S. Department of Agriculture, Washington, D. C.; and **Richard L. Arceneaux** of the Southern Regional Research Laboratory in New Orleans, La.

able pioneering achievement. Through analysis and observation they discerned that the mode of failure involved in tearing of woven fabrics was a tensile rupture of the yarns being torn, in contrast to previous thinking on the matter which considered tear to represent a shear phenomenon.

Diagrammatically, the situation as basically elucidated by Krook and Fox, is shown in *Figure 1*. As load is applied to the fabric, by motion of the jaws into which the tails are clamped, a gross distortion of the fabric geometry takes place locally in the active region of tear, the so-called "del." From an over-all point of view, those threads originally at right angles to the direction of subsequent tear attempt to orient themselves, as the load is increased, in a direction parallel to the tear, while the opposite system of threads also attempts to undergo a 90° rotation. This gross directional distortion takes place chiefly over a very restricted area, since substantially all of the force created by the jaw motion is transmitted from one "tail" to the other "tail" by way of the del.

As the external load is further increased, increasing stress and hence strain are applied to the originally transverse yarns, until such a point as one or more of the most highly strained of these in the del ruptures in tension, and a load drop takes place. Neglecting certain complex elastic interactions which occur almost simultaneously with the load drop, a lower level of load is attained which, to a first approximation, represents the load being carried by those strained del yarns still intact. Subsequent increases in external load produce repetitions of the action described, with upper load peaks representing points of failure, and lower load peaks representing the more or less steady state supportive force.

Clearly then, total load carrying capacity to the point where a thread ruptures, is dependent upon (1) yarn tensile strength, (2) the number of yarns in the del supporting the applied load, (3) the uniformity of the loads being borne by the del yarns, and (4) the support of the fabric surrounding the del region. Thus, anything which alters one or more of the above properties of a fabric structure can influence the tear strength of the fabric.

ANALYSIS OF TEAR STRENGTH OF COMMERCIAL FABRICS

The objective of the initial phase of the research was to determine the causes of loss in tear strength of cotton fabrics occasioned by resin treatment. To achieve this end a series of treated and untreated commercially available cotton fabrics, representing a wide range of weights, constructions, and resin treatments was obtained for study. A summary of the constructions of these goods is listed in *Table 1*.

Inasmuch as cotton fabrics are subjected to three major finishing processes prior to resin treatment (desizing, scouring, bleaching, and dyeing) which alter their geometry,

Figure 1. Tongue tear test.

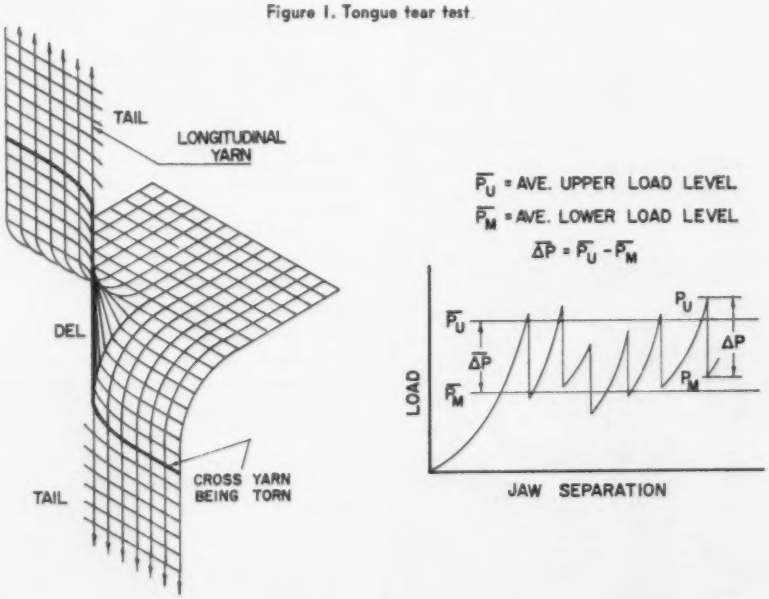


TABLE 1. Summary of Commercial Fabric Constructions

Sample No.	Fabric Wt (oz/sq yd)	Threads/Inch Warp	Threads/Inch Filling	Fabric Type	Finishing Treatment
1	3.29	85	76	Print cloth	Wash and wear
2	3.77	85	80	Print cloth	Embossed waffle pique
3	3.19	85	74	Print cloth	Glazed chintz
4	3.23	81	83	Plain cloth	UF* and softener
5	4.31	143	51	Poplin	UF and softener
6	3.30	139	69	Broadcloth	UF, DMEU,** & softener
7	6.35	130	54	Sateen	Resin treatment
8	8.31	116	55	Twill	Resin treatment
9	3.99	54	49	Chambray	Resin treatment
10	4.96	61	53	Plaid	Resin treatment

*UF—Urea formaldehyde
**DMEU—Dimethylol ethyleneurea

texture, and crimp, and change the frictional characteristics of the surface of the cotton fibers, it was deemed pertinent to the aims of this research to evaluate the effect of each of these processes on the tear resistance of these cotton fabrics. Thus, insofar as it was possible the fabrics examined in this phase of the research were studied at the following stages of production:

Stage	Description
A	Grey goods
B	Desized
C	Desized and scoured
D*	Desized, scoured, bleached, and dyed
E	Resin-treated finished goods
F	Same as "E" without resin

*At this point the samples are said to be in the "prepared" state.

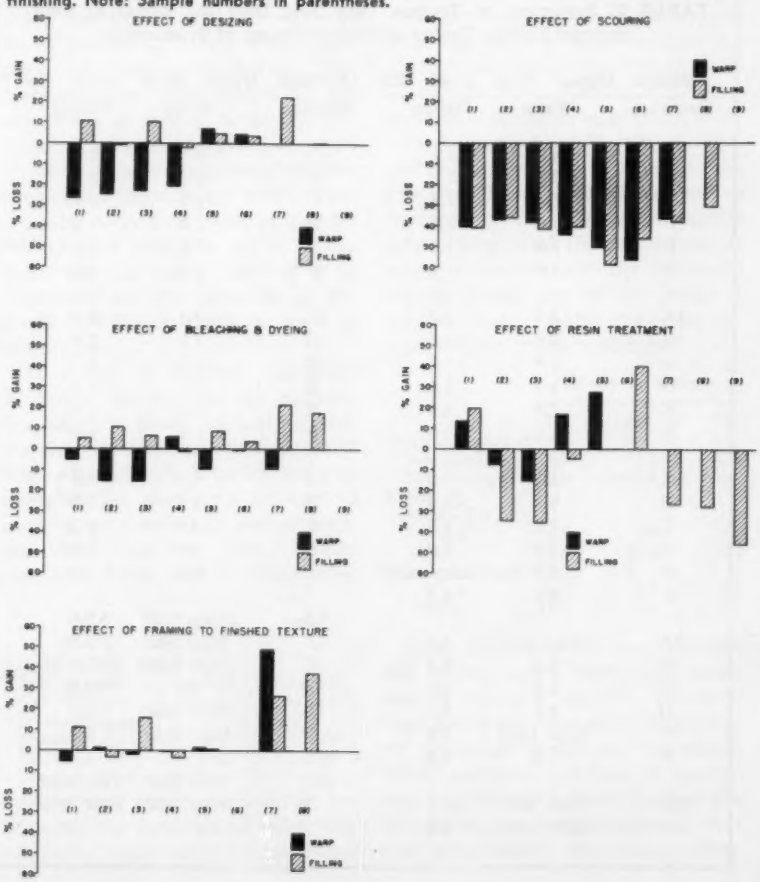
The difference between samples from stages D and E is not simply that one has resin and the other has not. A change in fabric geometry (ends and picks per inch, warp and filling crimp) generally results from handling the fabric during the resin application and resin curing processes. Thus there exists a twofold variation between D and E, one chemical and the other structural. To isolate the effect of one of these variables—structure—a portion of fabric was processed through the resin treating stage but did not receive any resin. This sample, stage F, has approximately the same geometry as the resinated sample and when compared with Stage D it permits some measure of the effect on tear strength of slight variations in geometry.

The criterion of tear strength selected for use in these evaluations of the effects on tear strength of the various manufacturing processes is the average upper peak load (P_u). This parameter can be considered as the average load necessary to continue the tearing action and is therefore a suitable criterion for the present analysis.

The phrase "loss in tear strength" implies an *a priori* level of tear strength to which the present magnitude of resistance to tear is compared. In this work, the per cent change in tear (not all the fabrics suffer a loss in tear) is generally based on the value of the tear strength found in that stage of production which immediately precedes the one under discussion, but in some cases the per cent change in tear is based on the tear strength of the grey fabric. The latter is referred to as the per cent total change, while the former is termed the per cent relative change in tear strength.

A pictorial representation of the Per Cent Relative Change data (absolute change in P_u expressed as a percentage of the P_u of the

Figure 2. Per cent relative change in tear strength induced by each step in chemical finishing. Note: Sample numbers in parentheses.



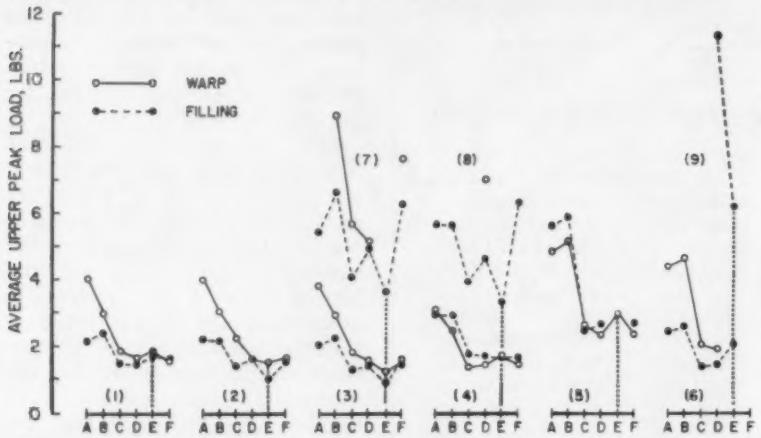


Figure 3. Effect of finishing treatments on tear strength. Code: A—grey goods; B—desized; C—scoured; D—bleached and dyed; E—resin treated; F—framed to finished width without resin. Note: Sample numbers in parentheses.

earlier stage of production) is found in *Figure 2*, which depicts by means of histograms the effect on tear strength of each of the finishing operations. A profile of both the warp and filling tear characteristics of each fabric from the grey to the finished state is illustrated by the line graphs in *Figure 3*. The basic data from which these figures were drawn are found in *Table 2*.

TABLE 2. Summary of Tongue Tear Test Data for Series of Commercial Fabrics Tested at Various Stages of Production

Average Upper Peak Load (lb)			Average Upper Peak Load (lb)		
Sample	Warp	Filling	Sample	Warp	Filling
1A	4.0	2.1	2A	4.0	2.2
B	2.9	2.3	B	3.0	2.2
C	1.7	1.4	C	1.9	1.4
D	1.6	1.4	D	1.6	1.5
E	1.9	1.7	E	1.5	1.0
F	1.6	1.6	F	1.6	1.5
3A	3.8	2.0	4A	3.1	3.0
B	2.9	2.2	B	2.4	2.9
C	1.8	1.3	C	1.4	1.7
D	1.5	1.4	D	1.4	1.7
E	1.3	0.9	E	1.7	1.6
F	1.5	1.6	F	1.4	1.6
5A	4.8	5.6	6A	4.4	2.4
B	5.2	5.8	B	4.6	2.5
C	2.5	2.4	C	2.0	1.4
D	2.3	2.6	D	1.9	1.4
E	2.9 Tore diagonally		E	3.2	2.0
F	2.3	2.6			
			8A	Side tear	5.6
7A	Side tear	5.4	B	Tail tear	5.6
B	8.9	6.6	C	Side tear	3.9
C	5.6	4.1	D	6.5	4.6
D	5.1	4.9	E	Side tear	3.3
E	Side tear	3.6	F	Side tear	6.3
F	7.6	6.2			
			10D	Tail tear	Tail tear
9D	Tail tear	11.3	E	Side tear	Side tear
E	Side tear	6.2			

An examination of these data and graphs reveals certain interesting characteristics of the tear strength of cotton fabrics. Foremost among these is the magnitude of the losses in tear strength exhibited by the cotton fabrics prior to the resin treatment. In this regard it is immediately apparent that the greatest reductions in tear strength are manifested after the scouring operation.

Removal of the natural lubricants from the cotton by the scouring process results in marked constraints on the ability of the yarn to move in the plane of the fabric. Thus the number of yarns moving into the del—the active region of tear—is seriously reduced and the load carrying capacity of the del structure decreases accordingly. A good estimate of the change in mobility of the yarns in the plane of the fabric can be obtained by comparing the number of threads rupturing per load drop during an inch of tear in the desized fabrics with the average observed in the scoured samples. This value is computed quite simply by dividing the number of peaks (load drops) in the tear diagram, *Figure 1*, corresponding to one inch of tear by the average number of cross yarns per inch of fabric.

A comparison of the average number of threads rupturing per load drop for all the commercial fabrics tested in the desized and scoured stages of production is listed below. It should be pointed out that all samples exhibited a reduction in number of threads rupturing per load drop following the scouring operation.

Stage of Production	Average Threads/Load Drop	
	Warp	Filling
Desized only	2.07	1.57
Desized and scoured	1.32	1.05

When one considers that the number of threads per inch, and the magnitude of warp and filling crimp prior to and following the scouring operation remained virtually unchanged, and in many instances the yarn strength in the scoured samples is greater than that of its desized counterpart,

TABLE 3. Comparison of the Changes in Tear Strength Occasioned by the Scouring and Resinating Processes

	Absolute Change in Tear (lb)				Per Cent Change in Tear Strength			
	Warp		Filling		Warp		Filling	
Sample	Desized vs Scoured	Prepared vs Resinated	Desized vs Scoured	Prepared vs Resinated	Desized vs Scoured	Prepared vs Resinated	Desized vs Scoured	Prepared vs Resinated
1	—1.20	+.22	—.96	+2.8	—40.8	+13.3	—41.2	+19.4
2	—1.11	—.12	—.79	—5.3	—37.2	—7.6	—36.4	—34.6
3	—1.13	—.23	—.94	—4.9	—38.7	—15.2	—42.0	—35.5
4	—1.09	+.24	—1.18	—.08	—44.5	+16.7	—40.7	—4.7
5	—2.64	+.63	—3.45	———	—51.0	+27.5	—59.1	———
6	—2.59	+1.31	—1.18	+.56	—56.8	+70.0	—46.6	+40.0
7	—3.28	———	—2.53	—1.30	—36.7	———	—38.3	—26.4
8	———	———	—1.75	—1.27	———	———	—31.0	—27.8
9	———	———	———	—5.20	———	———	———	—45.8
Avg*	—1.43	+.34	—1.33	—.40	—42.4	+17.5	—39.4	—9.9

* These average values are the algebraic averages based only on those samples for which test data are available in both the scoured and resin treated states. Thus warp samples 7, 8, and 9 and filling samples 5 and 9 are not included in the computation of the average.

then it becomes apparent that the constrained mobility of the yarns is for all intents and purposes the sole cause of the drastic reduction in resistance to tear exhibited by the scoured fabrics.

The extent to which the ability of these cotton fabrics to resist the propagation of tear has been impaired is highlighted by contrasting the change in tear strength occasioned by scouring with the change in tear strength resulting from the application of resins on these cottons. *Table 3* contains just such a comparison. The deleterious effects on tear strength of the scouring operation exceed by far the undesirable changes in tear strength resulting from resin treatment.

The data in *Table 3* demonstrate that the effect of commercial resin treatment on tear strength is not a universally deleterious one. Thus, it can be anticipated that generally one can not ascribe a single cause for loss in tear strength due to resinating, whenever such a loss occurs. Statistical considerations indicate that changes in tear strength greater than 10 per cent can not be attributed to random variation and are therefore worthy of investigation to seek assignable causes for these inordinate fluctuations in the load carrying capacity of the fabrics. Thus a comparison of certain physical properties of the commercial fabrics manifesting more than 10 per cent change in tear strength, *Table 4*, may shed some light on the complex interactions of yarn and fabric properties which effected the observed results.

In the following discussion, those samples which displayed reductions in tear strength following resin treatment will be referred to as Group A, while those samples manifesting improved tear strength post resin treatment are identified as Group B. In the discussions of average group properties one should keep in mind that there exist some fairly wide variations in certain of these properties within the samples in a group. With this in mind, the following comments on the gross group behavior of these samples may be of interest:

1. Group A fabrics exhibited virtually no change in average threads per peak, indicating that the del structure has probably not been altered significantly, and the average per cent loss in tear is seen to correspond to the average per cent loss in yarn tensile strength. From this we may infer

	Group A	Group B
Avg % change in		
Tear strength	—30.9	+31.2
Yarn strength	—30.7	—16.6
Avg threads/peak		
Prepared	1.39	1.34
Resinated	1.40	1.60

that when other structural influences are maintained relatively constant, yarn strength becomes the dominant factor.

2. A common denominator among the four fabrics in Group B is the type of crimp interchange exhibited by those fabrics following resin treatment. In each case the warp crimp was increased with a concomitant reduction in filling crimp. This would suggest that the fabrics were framed out fillingwise and allowed to come in warpwise during the handling in the resin application process. Fabrics in Group A, on the other hand, exhibited a variety of crimp interchanges. Here it is of interest to discuss the two Group A fabrics which displayed the same type of crimp interchange as the fabrics in Group B, and one of the Group A fabrics which manifested the opposite type of interchange.

	Group A Sample		
	2F	3W	9F
Avg % change in			
Tear strength	—34.5	—15.2	—45.8
Yarn strength	—44.6	—28.8	None
Crimp, %			
Prepared			
Warp	1.8	1.9	7.9
Filling	25.4	22.9	4.3
Resinated			
Warp	6.3	2.4	4.2
Filling	14.0	10.7	9.1

One of these fabrics, Sample No. 2, has such a high loss in yarn tensile strength that it is doubtful that any individual or combination of favorable structural variations could mitigate the loss in tear to any significant extent. In Sample No. 3, it may be conjectured that the presumably favorable crimp

TABLE 4. Comparison of Some Physical Properties of Samples Which Manifested More Than 10% Relative Change in Tear Strength After Resin Treatment

A. Samples Exhibiting Loss in Tear Strength

Sample No.	Change* in P_c %	Yarn Strength** D lb	Yarn Strength** E[1] lb	Yarn Strength** Change* %	Threads/Peak D	Threads/Peak E	Threads/Peak Change* %	Monsanto Crease Angle D	Monsanto Crease Angle E	Monsanto Crease Angle Increase %	Yarn Crimp, % D Warp	Yarn Crimp, % D Fill	Yarn Crimp, % E Warp	Yarn Crimp, % E Fill
2F	—34.5	.56	.31	—44.6	1.48	1.54	+ 4.1	——	——	——	1.8	25.4	6.3	14.0
3W	—15.2	.66	.47	—28.8	1.43	1.66	+16.1	88°	130°	47.7	1.9	22.9	2.4	10.7
3F	—35.5	.45	.28	—37.8	1.38	1.31	— 5.1	82°	131°	59.7	—	——	—	——
7F	—26.4	1.26	.85	—32.5	1.35	1.36	+ 0.7	106°	143°	34.9	2.6	12.4	2.6	10.3
8F	—27.8	1.60	.95	—40.6	1.14	1.35	+18.4	95°	131°	37.9	9.0	10.9	7.5	8.1
9F	—45.8	.98	.98	0	1.54	1.20	—22.0	79°	137°	73.4	7.9	4.3	4.2	9.1
Avg	—30.9	.92	.64	—30.7	1.39	1.40	+ 2.0	90°	134°	50.7	4.6	15.2	4.6	10.4
B. Samples Exhibiting Gain in Tear Strength														
1W	+13.3	.66	.62	— 6.1	1.39	1.56	+12.2	81°	107°	32.1	0.7	24.9	1.9	14.3
1F	+19.4	.51	.44	—13.7	1.38	1.40	+ 1.4	81°	102°	25.9	—	——	—	——
4W	+16.7	.58	.46	—20.7	1.18	1.54	+30.5	86°	141°	64.0	1.3	17.2	2.3	9.1
5W	+27.5	.82	.66	—19.5	1.58	1.82	+15.3	67°	123°	83.6	6.5	3.2	8.4	1.9
6W	+70.0	.57	.49	—14.0	1.51	1.83	+21.2	79°	121°	53.2	5.1	8.2	7.0	5.9
6F	+40.0	.63	.47	—25.4	1.02	1.46	+43.1	72°	112°	55.5	—	——	—	——
Avg	+31.2	.63	.52	—16.6	1.34	1.60	+20.6	77.6°	117.6°	52.4	3.4	13.4	4.9	7.8

* All per cent change values based on average value of "prepared" sample, and the average per cent change is based on the algebraic average of the change in each pair of D and E samples.
**Yarn strength based on average ravel strip tensile divided by threads per inch.
[1]D—identifies the "prepared" sample.
E—identifies the resin-treated sample.

interchange effected an appreciable improvement in warpwise mobility, suggested by the 16 per cent increase in number of threads per peak, which could readily minimize the loss in warp tear strength expected in a fabric that has suffered approximately 30 per cent loss in tensile strength.

A strong point in support of the contention that an increase in warp crimp associated with a reduction in filling crimp, resulting from handling during resin treatment, may improve the tear strength of the resin treated fabrics is found in the performance of Sample No. 9, which exhibited the reverse type of crimp interchange. This fabric was apparently pulled warpwise and allowed to come in fillingwise. In this state the fabric displayed a 22 per cent reduction in number of filling threads rupturing per peak. This may be attributable to the increase in filling crimp and unfavorable rise in warpwise cover factor. This sample exhibited a 45.8 per cent loss in tear strength despite the fact that there was no measurable change of tensile strength in either warp or filling yarns.

The foregoing discussion seems to indicate that one may reasonably venture an opinion that crimp interchange, resulting from fillingwise tensioning during resin treatment, tends to enhance the tear strength of the fabric.

3. Another point of interesting speculation exists in the possible relationship between the magnitude of crease resistance in the finished fabrics and its tear strength. The average Monsanto crease recovery values for the finished fabrics in Group A (134°) is significantly higher than that for Group B (117.6°). What would have happened to the tear performance of the samples in Group B if they were at the same level of crease resistance as Group A? At this time there is no evidence available which can definitely answer the question.

It is expected that higher crease recovery properties would be accompanied by reduction in tensile strength, which presumably would effect a decrease in tear strength; however, with the degree of improvement in yarn mobility exhibited by fabrics in Group B this effect would be appreciably mitigated. This latter point leads to the further question: What effect does the magnitude of crease resistance have on the mobility of the yarns in the plane of the fabric? If higher crease resistance leads to a restriction of yarn mobility, in conjunction with losses in yarn tensile, the resultant tear strength would undoubtedly be severely decreased. However, there is some evidence available which indicates that a restriction of yarn mobility is not a necessary by-product of good crease resistance.

Observe the level of crease resistance in fabric No. 4W, Group B, and the concomitant change in yarn mobility as shown in *Table* 4. This sample exhibited a 30 per cent increase in yarn mobility and was found to have a Monsanto crease recovery angle of 141°. Thus it would seem that fabrics with excellent crease recovery can have very good yarn mobility in the plane of the fabric. In fact, it is more likely that good crease recovery is a result of adequate yarn mobility and not its cause. It is believed that this beneficial com-

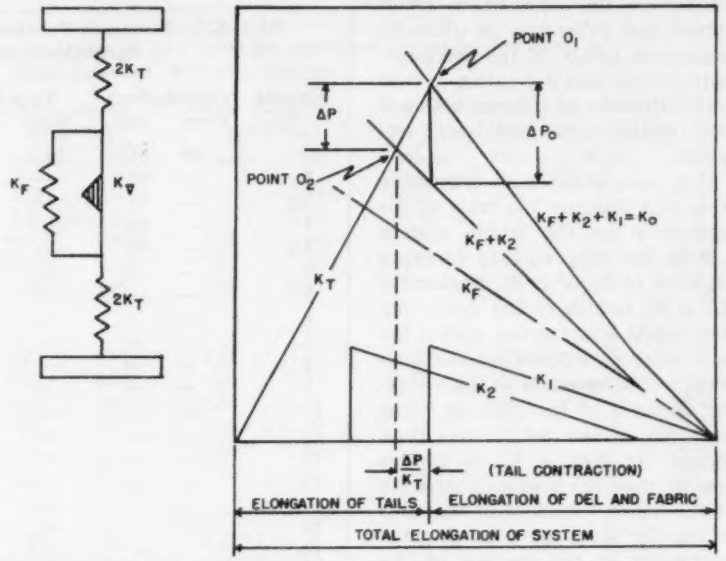
bination of high crease recovery and good yarn mobility is attained through the utilization of finishing techniques on a structure which has suitable yarn and fabric geometry. The following section will deal with the role of yarn and fabric geometry in determining the tear properties of cotton fabrics.

EFFECT ON TEAR STRENGTH OF VARIATIONS IN YARN AND FABRIC GEOMETRY

The foregoing discussion is of necessity almost exclusively qualitative in nature, since the complete mechanism of the tearing action is not understood, and the portion which is known is descriptive principally in general terms. It seems appropriate at this point to consider just what is known of the mechanism of tear, what remains to be explained, and how we may proceed to obtain the objectives sought in this research program in the light both of what is known and what can be learned from additional empirical investigations.

To begin with, Krook and Fox (2) demonstrated photographically that the cross yarns fail in tension during the tongue tear test and that the tearing action is the result of progressive tensile failure of these cross yarns rather than any shearing action perpendicular to the surface of the fabric. They also observed a hyperbolic curvature in the sides of the del (the apparent active region of tear), which was subsequently confirmed by observations made at these laboratories by Teixeira, Platt, and Hamburger (1).

In their work on the relation of certain geometric factors to the tear strength of woven fabric, Teixeira et al (1) showed that the load-elongation diagram of the del may be synthesized, for a hypothetical fabric, from a knowledge of the load-elongation diagram of the cross yarns and their arrangement in the del. Their theoretical considerations, both graphical and mathematical, of the load-elongation diagram of the del structure pointed out an important aspect of the arrangement of the yarns in the del, namely that the yarn spacing in the del influences tear strength. In addition to providing more yarns for load support in the del, favorable proximity of the yarns enhances the elongation balance among the yarns, which in turn results in an increased load carrying capacity for the del structure. Thus, the shape of the load-elongation diagram of the del yarns, their ultimate elongation, and the variability of their ultimate elongation, which all contribute to elongation balance, are important factors in the development of the tear strength properties of any woven fabric. This hypothesis appears to be confirmed by the analyses of the tear diagrams of the commercial samples discussed earlier in this paper, where increases in the average number of yarns rupturing per load drop, a product of improved elongation balance, resulted in raising the average level of tear strength.



K = EFFECTIVE SPRING CONSTANT OF SPECIMEN BEING HELD.
$2K_T$ = SPRING CONSTANT OF ONE OF THE TAILS; K_∇ = EFFECTIVE SPRING CONSTANT OF THE DEL.
K_F = EFFECTIVE SPRING CONSTANT OF THE FABRIC BEING LOADED IN PARALLEL WITH DEL.
$K_O = K_F + K_\nabla$ IS SPRING CONSTANT OF SPECIMEN IF TAILS ARE OF ZERO LENGTH

ACCORDING TO RULE FOR SERIES SPRINGS.

$$1/K = (1/K_O) + (1/2K_T) + (1/2K_T) = (1/K_O) + (1/K_T)$$
$$K = (K_O K_T)/(K_O + K_T)$$

FOR EVERY LOAD THAT IS PLACED ON THE SERIES COMBINATION OF $K_T + K_O$ THERE IS AN EQUILIBRIUM POSITION WHICH MAY BE DETERMINED GRAPHICALLY AS SHOWN IN FIGURE 1B.

K_1 AND K_2 ARE SLOPES OF MECHANICALLY CONDITIONED DEL YARNS.
ΔP = LOAD DROP AT THE JAWS
ΔP_O = LOAD DROP WHICH WOULD OCCUR IF TAILS WERE OF INFINITE STIFFNESS
EQUILIBRIUM POINTS - O_1 BEFORE K_1 BREAKS; O_2 AFTER K_1 BREAKS.

Figure 4a (left). Mechanical representation of tongue tear specimen. Figure 4b (right). Graphical presentation of spring system.

Through the expedient of representing those fabric components which are under load during the tearing action by a mechanical model consisting of springs arranged in series and in parallel, (see *Figure 4a*), Teixeira et al (1) were able to construct a graphical presentation of the interaction between yarns in the del, fabric in parallel with the del, and the tails, during a hypothetical tearing action involving only two del yarns. This presentation is found in *Figure 4b*.

From a consideration of this graph several important relationships were observed, and some pertinent inferences were made. For example, the extent of tail contraction is seen to be a function of the spring constant of the tails. Furthermore, one would expect that if the tensile rigidity of the tails decreased markedly, the

amount of tail contraction could exceed the difference in ultimate elongation levels of the mechanically conditioned del yarns, so that both yarns would rupture before a new equilibrium point was attained.

It is also possible to determine from this diagram the ratio of the load drop on the whole system ΔP, to the drop in load carrying capacity of K_0 or ΔP_0. Neglecting K_t, ΔP_0 (which is the load drop that would occur at the jaws if the tails were of infinite tensile stiffness) would be equal to the breaking strength of the yarn or yarns ruptured in the del. It has been shown (1) that ΔP_0 is always greater than the breaking strength of the yarns broken and that this is due in large part to the discontinuity in the loading of the fabric in parallel with the del. The difference (ΔP_0 - strength of del yarns breaking) is a measure, therefore, of how much load K_t was supporting just before the del yarns broke. It has also been shown (1), and generally confirmed by the studies discussed later in this section, that is looser, more distortable fabrics the value of (ΔP_0 - strength of yarns broken) becomes larger. Therefore, it is not too surprising that the expression, which may be derived from the graph in Figure 4b, for ΔP_0,

$$\Delta P_0 = \Delta P \left(\frac{K}{K_T} + \frac{K_t}{K_T} + 1 \right) \quad (1)$$

shows that the amount of fabric assistance depends upon the relative extensibilities of the tails and the fabric loaded in parallel with the del.

Thus the factors in fabric geometry which influence the shape of the del and the nature of the fabric structure in parallel with the del are seen to affect not only the load capacity of the del, but also the amount of assistance rendered by the untorn fabric.

Unfortunately, there are a number of unknowns in the mechanics of tear which present obstacles to any complete quantitative synthesis of the tearing action. Perhaps the most important of these aside from the actual dimensions of the del, is the action of the fabrics in parallel with the del, represented above as K_t. Were it not for this component, the tear load diagram could be completely synthesized from the yarn characteristics, the yarn spacing, and the spring constant of the tails. However, inasmuch as the parallel loaded fabric is an important factor contributing to the tear characteristics of a fabric, and information about its performance is, in general, lacking, the desired synthesis can not be completed. Another serious unknown is the effective gauge length of the yarns under tension in the del. This of course determines the level of breaking strength of the del yarns, which for the case of nonuniform yarns, may be considerably different from strengths obtained at standard test lengths.

Still other factors which remain obscure are such geometrical factors as the alignment of the del structure relative to the direction of the tear force; the load level and extent to which the yarns in the del have been mechanically conditioned, prior to becoming del yarns, by the action of the discontinuous loading on the del and the fabric in parallel with the del; and the effect of bending the del yarns around the orthogonal set of yarns which form the hyperbolically shaped pseudo jaws. The scope of this research project does not encompass the determination of the above factors.

Despite the aforementioned gaps in the current state of knowledge regarding the theoretical aspects of tear, it seemed appropriate to investigate the extent to which changes in yarn and fabric geometry influenced the tear strength of a single weight class of cotton fabrics. This information would then be used to aid in the design of a pedigreed series of experimental fabrics representing a variety of weights and potential uses.

The selection of the type of fabric to be employed for this study of geometric structural variations was based on the availability of a pedigreed series of twenty-three cotton fabrics designed and produced for the U.S.D.A. for research conducted on an earlier contract (3). These fabrics were produced from the same lot of cot-

TABLE 5. Geometric Parameters Varied in U. S. Department of Agriculture Experimental Fabrics

Sample No.	Threads/Inch		Yarn Size		T M		Weave
	Warp	Fill	Warp	Fill	Warp	Fill	
1[1]	64	64	30/1	30/1	4.0Z	4.0Z	Plain
2	—	48	—	—	—	—	—
2A	—	48	—	18/1	—	—	—
3	—	80	—	—	—	—	—
3A	—	80	—	42/1	—	—	—
4	—	—	—	—	—	4.0S	—
5	—	—	—	—	—	3.0Z	—
6	—	—	—	—	—	3.5Z	—
7	—	—	—	—	—	4.5Z	—
8	—	—	—	—	—	5.0Z	—
9	—	—	—	—	—	—	2/1 Twill
10	—	—	—	—	—	—	2/2 Twill
11	—	—	—	—	—	—	3/1 Twill
12	—	—	—	—	—	—	2x2 Basket
13	—	—	—	—	—	—	Oxford
14	—	—	18/1	18/1	—	—	—
15	—	—	18/1	—	—	—	—
16	—	—	18/1	18/1	—	—	3/1 Twill
17	—	—	18/1	18/1	—	—	Oxford
18	—	—	42/1	42/1	—	—	—
19	—	—	42/1	—	—	—	—
20	—	—	42/1	42/1	—	—	3/1 Twill
21	—	—	42/1	42/1	—	—	Oxford

[1]Control
Note: Dash indicates parameter is the same as that of the control fabric.

TABLE 6. Effect of Geometric Variables on Tear Strength and Other Properties Pertinent to Tear Strength of Cotton Fabrics

Sample Number	Principal Variable* Yarn Size	Avg Upper Peak (lb) Warp	Avg Upper Peak (lb) Fill	Avg Threads per Peak Warp	Avg Threads per Peak Fill	Yarn Strength** in Fabric (lb) Warp	Yarn Strength** in Fabric (lb) Fill	Per Cent Crimp Warp	Per Cent Crimp Fill
14	18/1 W&F	2.71	2.88	1.12	1.14	1.23	1.32	6.3	11.7
1	30/1 W&F	1.62	1.74	1.05	1.16	.70	.70	2.3	11.4
18	42/1 W&F	1.24	1.42	1.01	1.04	.47	.46	.8	9.2
15	18/1W 30/1F	2.85	1.67	1.03	1.04	1.25	.72	4.1	11.3
19	42/1W 30/1F	1.25	1.81	1.05	1.09	.50	.72	1.7	9.5
	Fabric Weave								
1	Plain	1.62	1.74	1.05	1.16	.70	.70	2.3	11.4
13	Oxford	3.30	3.05	1.99	1.30	.62	.67	.9	9.6
9	Twill 2/1	2.05	2.29	1.03	1.14	.72	.65	1.9	8.1
10	Twill 2/2	2.54	2.77	1.09	1.30	.67	.59	1.0	9.2
12	2x2 Basket	5.14	5.16	1.61	1.98	.67	.62	1.0	8.5
11	Twill 3/1	2.76	3.14	1.11	1.33	.68	.63	1.0	8.6
	Fabric Texture								
2	64x48	1.78	1.60	1.02	1.05	.68	.62	2.0	8.2
1	64x64	1.62	1.74	1.05	1.16	.70	.70	2.3	11.4
3	64x80	1.64	1.83	1.04	1.11	.69	.72	2.8	11.0
2A	64x48 (30/1 W, 18/1 F)	1.69	2.59	1.04	1.06	.73	1.05	3.4	8.0
3A	64x80 (30/1 W, 42/1 F)	1.60	1.35	1.04	1.15	.71	.49	1.2	11.9
	Weave & Yarn Size								
14	18/1 W&F, Plain	2.71	2.88	1.12	1.14	1.23	1.32	6.3	11.7
17	18/1 W&F, Oxford	5.03	3.90	1.91	1.27	1.15	1.24	1.6	11.3
16	18/1 W&F, Twill 3/1	3.52	4.07	1.10	1.16	1.22	1.18	2.4	8.6
18	42/1 W&F, Plain	1.24	1.42	1.01	1.04	.47	.46	.8	9.2
21	42/1 W&F, Oxford	2.77	2.60	1.37	1.00	.41	.42	.9	10.4
20	42/1 W&F, Twill 3/1	2.49	2.92	1.33	1.10	.42	.39	.7	7.1
	Filling TM								
4	4.0 S	1.67	1.81	1.03	1.16	.70	.70	2.4	9.8
5	3.0 Z	1.71	1.83	1.03	1.08	.71	.66	2.0	9.6
6	3.5 Z	1.61	1.84	1.04	1.18	.73	.68	2.5	10.3
1	4.0 Z	1.62	1.74	1.05	1.16	.70	.70	2.3	11.4
7	4.5 Z	1.60	1.65	1.03	1.04	.68	.70	3.0	9.0
8	5.0 Z	1.62	1.79	1.06	1.09	.74	.68	2.6	9.3

*Manner in which sample differs from Control Fabric (No. 1)
**Obtained by dividing the ravel strip tensile strength by threads per inch
Note—Control fabric construction
Threads/inch—64x64 Filling TM—4.0 Z
Yarn size—30/1 W & F Weave—plain

ton, Deltapine 15, and they were all subjected to the same finishing treatment (desized with enzyme, kier boiled, and chemic bleached) simultaneously. Thus these fabrics form a population which is uniform for all intents and purposes in so far as handling is concerned, in every respect save one, geometry.

The details of the yarn and fabric structures for the fabrics in this series are itemized in *Table 5*. The test results are presented in *Table 6*, and a schematic representation of the effect on tear strength of these variations in yarn and fabric geometry is found in *Figure 5*.

A number of interesting relationships were observed in these data:

1. The simple expedient of substituting coarser, stronger yarns into these textile structures, while keeping the weave and number of yarns per inch unchanged, resulted in a fairly efficient utilization of the additional yarn strength in raising the level of fabric tear resistance.

Consider the tear strength properties of sample numbers 18, 1, and 14 as reported in *Table 6* and illustrated in *Figure 5*. These structures are all plain weaves with 64 yarns per inch in warp and filling. Yarn sizes in warp and filling vary from 42s/1 in Sample No. 18 to 30s/1 in Sample No. 1 and then to 18s/1 in Sample No. 14. As one proceeds from Sample No. 18 to No. 1 and then to No. 14 one encounters a progressive increase in fabric weight, cover factor, warp and filling crimp, and an improvement in crimp balance. This latter point refers to the ratio of the filling to the warp crimp.

The extent to which increased yarn strength has been utilized to impart higher tear strength in these design variations may be in-

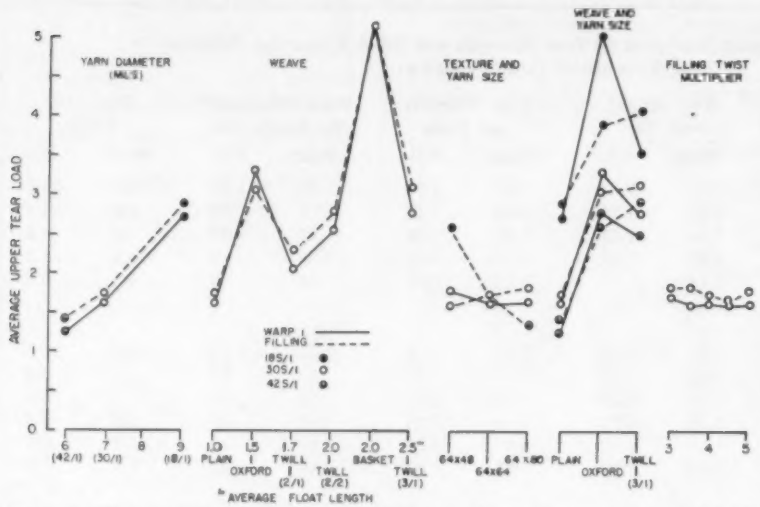


Figure 5. Effect of variations in yarn and fabric geometry on average upper peak load in tear diagram.

ferred from the ratio of the tear strength to the yarn strength. This ratio is called the normalized tear strength.

Listed below are the pertinent data for these fabrics:

	Sample Number		
	18	1	14
Yarn size (W & F)	42/1	30/1	18/1
Fabric wt (oz/sq yd)	1.97	2.83	5.02
Relative cover factor[1]	9.88	11.68	15.09
Crimp balance[2]	11.5	5.0	1.8
Tear strength (lb)			
Warp	1.24	1.62	2.71
Filling	1.42	1.74	2.88
Yarn strength (lb)			
Warp	0.47	0.70	1.23
Filling	0.46	0.70	1.32
Normalized Tear[3]			
Warp	2.65	2.31	2.20
Filling	3.10	2.48	2.15

[1]Relative cover factor $= \frac{\text{threads per inch}}{\sqrt{\text{yarn count}}}$

[2]Crimp balance $= \frac{\text{filling crimp}}{\text{warp crimp}}$

[3]normalised tear $= \frac{\text{tear strength}}{\text{yarn tensile strength}}$

Were the only differences among these samples an increase in yarn size, one would anticipate that the normalized tear strength would be the same. The data in the above table indicate that with the incorporation of coarser, stronger yarns to obtain increased tear strength, normalized tear strength is impaired, and the most likely cause is the increased longitudinal cover factor.

If the cover factor were the only structural parameter changed as a result of incorporating larger yarn sizes in the fabric, one could have anticipated even greater reductions in normalized tear strength than those observed in these samples. However, there are mitigating factors operative in these variations, namely, higher level of crimp and improved crimp balance.

It is believed that an optimum condition of crimp exists, as yet unknown, where the amount of crimp, the crimp balance, and the degree of crimp interchange under load allow for the type of distortion which results in a long shallow del structure. Teixeira et al (1) have indicated that this type of del, as opposed to a short deep del, yields a better load carrying structure, since the longer del yarns, those bearing most of the load, will be close together. The closer these yarns are to each other the better the elongation balance among them and the greater their combined load-carrying capacity. The improved crimp balance in the resinated commercial fabric discussed at the beginning of this paper which exhibited higher tear resistance than their nonresin-treated counterparts lends some credence to the possibility that improved crimp balance has mitigated the normally deleterious effects of increased cover factor.

2. It has been stated earlier in this paper that the number of yarns in the del supporting the applied load and the support of the fabric in parallel with the del are very important factors in the determination of the total load carrying capacity of the structure up to the point of cross thread rupture.

One may infer that the enhanced distortability of the fancy weave samples resulting from longer average float lengths permits more yarns to enter into the del structure and reduces the cross thread spacing. This improves elongation balance, which in turn improves the load carrying capacity of the del yarns, and allows more trellising in the region around the del, thereby resulting in greater support from the fabric in parallel with the del. Thus it is not surprising that all of the changes in weave are associated with very substantial increases in the level of tear resistance observed in these sample fabrics.

It is not possible to state unequivocally that increases in float length *per se*, will cause increases in fabric distortability and hence increased tear strength. Observe the pictorial presentation, *Figure 5*, of the relationship between tear strength and average float lengths of the weaves examined in this series of fabrics. The tear strength data for the oxford and 2x2 basket weave samples seem to refute any unique relationship of the sort described above regarding float length, distortability, and tear strength.

One could reasonably argue that it is not valid to include the oxford and basket weaves in the same series with the twill weaves, since the oxford and 2x2 basket weaves employ two ends weaving as one. This would presumably result in better elongation balance than would be the case for the twills, without as much dependence on enhanced distortability.

While it is not possible to promulgate a simple general law that tear strength is directly related to average float length, all other factors remaining reasonably unchanged, it is probably a reasonable statement within a class of weaves, i.e., twills, baskets, etc.

3. Of great interest in this study

are the excellent results obtained by varying two geometric parameters in a single fabric. Witness the level of tear strength exhibited by a fabric woven with 42/1 yarns in an oxford weave (Sample No. 21) relative to that of a plain weave fabricated with 18/1 yarns (Sample No. 14).

	Sample Number 14	21
Weave*	Plain	Oxford
Yarn Size		
Warp	18/1	42/1
Filling	18/1	42/1
Avg tear strength, lb		
Warp	2.71	2.77
Filling	2.88	2.60

*Other yarn and fabric geometric details are same as control fabric No. 1—See *Table* 1.

The tear strengths of these two samples are equivalent, yet the relative weight* of Sample No. 14 is more than double that of Sample No. 21 and its average yarn strength is more than 250 per cent greater than that of the 42/1 yarn. In this example the advantage of high yarn strength is significantly diminished by more than 50 per cent higher relative cover factor in Sample No. 14, together with the limited distortability of its plain weave. On the other hand the lower cover factor and high distortability of the oxford weave overcame the yarn strength deficit of Sample No. 21.

4. Another example of combining variables to achieve improved tear strength, in this instance without notable change in either relative weight or relative cover factor, is found in a comparison of Sample Nos. 3 and 2A, wherein the number of picks per inch was reduced from 80 to 48, and the yarn size increased from 30/1 to 18/1. The relative weights of the two fabrics are alike and Sample No. 2A has a slightly lower relative cover factor fillingwise. The warpwise tear strength for this pair of fabrics is unchanged but the fillingwise tear was increased by 41.5 per cent.

	Sample Number 2A	3
Threads/inch		
Warp	64	64
Filling	48	80
Yarn size		
Warp	30/1	30/1
Filling	18/1	30/1
Avg upper peak, load lb		
Warp	1.69	1.64
Filling	2.59	1.83

*Relative weight = $\frac{\text{threads per inch}}{\text{yarn count}}$

The ratio of these fillingwise tear strengths is almost in direct proportion to the ratio of filling yarn strengths, indicating equivalent del structures and comparable assistance from the fabric in parallel with the del. This is not too surprising in light of the equivalence of the longitudinal thread spacing, magnitude of warp and filling crimp, and crimp balance present in those two fabrics. What is surprising, however, is the insensitivity of the warpwise tear characteristics to the rather substantial reduction in fillingwise cover factor.

DESIGN OF EXPERIMENTAL FABRICS

As a result of the investigation of the effect on tear strength of changes in yarn and fabric geometry, described above, it was apparent that the two principal means available for improving the tear strength of a fabric by the expedient of altering the yarn or fabric construction were as follows:

1. Increase the mobility of the yarns in the plane of the fabric. This may be done utilizing one or both of the following alterations in fabric construction:

(a) Use of weave with longer floats.

(b) Reduce the cover factor of the fabric, usually of the longitudinal yarns, by decreasing the number of threads per inch.

2. Use a stronger yarn. This normally implies changing to a coarser yarn with texture changes as described below.

In the design of the thirty-one experimental fabrics utilized in this aspect of the program, the variations embodied some one or combination of the above principles. The control and experimental fabrics were produced in the textile processing laboratories* of the Southern Utilization Research and Development Division, U. S. Department of Agriculture, New Orleans, La., from detailed specifications furnished by the Fabric Research Laboratories. The Deltapine cotton used in all the control and experimental fabrics was carefully selected with respect to growth conditions and uniformity of fiber properties and then carefully blended to prevent differences in fiber properties from affecting the results. Because of the fine yarns required for the broadcloth fabrics, the cotton used in these fabrics was combed; all other types of control and experimental fabrics used in the study were produced from carded stock.

The experimental fabrics include duplications of four of the commercial fabrics examined at the beginning of this program. These duplications are referred to as control fabrics and together with the variations they comprise the thirty - one experimental fabrics examined in this work. The control fabrics offer a wide range of fabric weights, textures, and weaves for analysis. It is believed that they represent important classes of cottons which are produced in significant quantities and which are normally resin treated.

Changes in yarn or fabric structure of the sort implied above must be made within some frame of reference such that the experimental fabric is related to the control in a reasonable manner. Certainly the level of tear strength of an 80x80 print cloth woven with 40s/1 can easily be surpassed by a 2x2 basket weave fabric, containing 40x40 threads per inch, woven with 12s/1 yarns. The latter represents an increase in relative weight of approximately 66 per cent, and a decrease in relative cover factor of 9 per cent. This variation, however, could not be construed as bearing any reasonable relationship to the (80x80) control fabric. Thus it was deemed necessary to establish some limits within which the variation for any single construction may be drawn. In the design of the experimental fabrics described herein a maximum tolerance for magnitude of change in weight or cover factor of ± 15 per cent was adhered to. In the majority of cases the variations represent no more

*The authors are particularly indebted to Messrs. R. J. Cheatham and John J. Brown for the care and interest they exhibited in producing the experimental fabrics examined in this phase of the research.

than a 10 per cent change in either weight or cover factor.

The details of the changes in yarn and fabric geometry are found in *Table 7*, and the magnitude of the effects of these changes on the relative weight and cover factor of the control fabrics are listed in *Table 8*. An examination of these tables will show that the predominant source of variation is in the filling direction. There are several excellent reasons which necessitated such a selection; one reason is the general experience that the deleterious effect of resin treatment on tear is more severe fillingwise than warpwise; another is the relative ease of producing a well controlled series of experimental fabrics through the expedient of filling changes. And certainly not the least factor to be considered is the inordinate expense of producing the number of warps necessary to give the investigator as wide a range of variables as it is possible to obtain by variations in filling.

The principal factor, which guided the design of the majority of the variations produced for this study, was enhancement of yarn mobility in the plane of the fabric. Theoretical considerations of the mechanics of tear and empirical evaluations of the influence of yarn and fabric geometry on tear strength are in accord on this point. The greater the mobility of the two systems of yarns in a fabric structure the greater is the resistance to the propagation of tear through that structure.

Two design features have been used rather extensively, separately and in combination, to impart greater mobility to the fabric structure. They involve the use of weaves with long floats, and the specification of lower fabric cover factors. A third feature incorporated reverse twist in the filling direction, since it appeared from earlier work that reductions in nesting, resulting from the utilization of reverse twist, oftentimes yielded increased yarn mobility, hence improved tear strength. This technique was used in a limited (one per warp set) number of samples.

Another factor which influenced the design of the experimental fabrics was the utilization of coarser yarns for additional tensile strength. These yarns were used in the filling direction and the number of picks per inch was adjusted to yield either a fairly constant total relative fabric weight or relative filling cover factor. Occasionally the coarser filling yarns were combined with varying cover factors and weaves in an attempt to obtain higher tear strength.

Resin treatment of this series of fabrics was applied by two finishers. The print and broadcloths were finished together, and the heavier fabrics, sateens and twills, were finished as one lot. Details as to the type of resins, catalysts, softeners, drying and curing conditions are listed below:

	Warp Number	
	1 and 2	3 and 4
Type of fabric	Printcloth	Sateen work clothing
	Broadcloth	Heavy weight twill
Resin	Zeset	Zeset S
Catalyst	H-7 modified zinc complex type	
Softener	Bradsyn Soft P E	Moropol X105
	Triton X-100	Argepal
Drying temperature	240 F	260 F
Cure temperature	360 F	360 F
Curing time	1 minute	1 minute

TABLE 7. Proposed Variations in Yarn and Fabric Geometry for Four Fabric Constructions Selected for Study in Parts III and IV

		Threads per Inch			
		Off-Loom	Finished	Yarn Size	Fabric
		Warp Fill	Warp Fill	Warp Fill	Weave
Warp No. 1 Control 1		79 x 78	85 x 76	30/1 - 40/1	Plain
Variation	(a)	79 x 78	85 x 76	30/1 - 40/1*	Plain
	(b)	79 x 68	85 x 66	30/1 - 30/1	Plain
	(c)	79 x 60	85 x 57	30/1 - 30/1	Plain
	(d)	79 x 60	85 x 57	30/1 - 30/1	2x2 Basket
	(e)	79 x 68	85 x 66	30/1 - 30/1	2x2 Basket
	(f)	79 x 78	85 x 76	30/1 - 40/1	2x2 Basket
	(g)	75 x 82	80 x 80	30/1 - 40/1	2x2 Basket
	(h)	75 x 82	80 x 80	30/1 - 40/1	Plain
Warp No. 2 Control 2		135 x 70	139 x 69	48/1 - 48/1	Plain
Variation	(a)	135 x 70	139 x 69	48/1 - 48/1*	Plain
	(b)	135 x 70	139 x 69	48/1 - 48/1	3/1 Twill
	(c)	135 x 70	139 x 69	48/1 - 48/1	Oxford
	(d)	135 x 64	139 x 62	48/1 - 40/1	Plain
	(e)	135 x 60	139 x 57	48/1 - 40/1	Plain
	(f)	135 x 60	139 x 57	48/1 - 40/1	Oxford
Warp No. 3 Control 3		125 x 56	130 x 54	22/1 - 15/1	Sateen**
Variation	(a)	125 x 56	130 x 54	22/1 - 15/1*	Sateen**
	(b)	125 x 56	130 x 54	22/1 - 15/1	Oxford
	(c)	120 x 58	125 x 55	22/1 - 15/1	Sateen**
	(d)	120 x 52	125 x 50	22/1 - 15/1	Sateen**
	(e)	120 x 52	125 x 50	22/1 - 15/1	Oxford
Warp No. 4 Control 4		110 x 58	116 x 55	15/1 - 15/1	3/1 Twill
Variation	(a)	110 x 58	116 x 55	15/1 - 15/1*	3/1 Twill
	(b)	110 x 58	116 x 55	15/1 - 15/1	Oxford
	(c)	105 x 58	110 x 55	15/1 - 15/1	3/1 Twill
	(d)	105 x 52	110 x 50	15/1 - 15/1	3/1 Twill
	(e)	105 x 58	110 x 55	15/1 - 15/1	Oxford
	(f)	105 x 52	110 x 50	15/1 - 15/1	Oxford
	(g)	95 x 58	100 x 55	14/1 - 15/1	3/1 Twill
	(h)	95 x 58	100 x 55	14/1 - 15/1	Oxford

*Filling twist direction is "S;" all other yarns are "Z" twist.
**Five harness sateen.

PERFORMANCE OF EXPERIMENTAL FABRICS

The subject with which this research project is principally concerned is tear strength. Accordingly, the major portion of the following discussions will deal with tear strength as it is affected by variations in the yarn and fabric structure and as it is affected by the processing treatments between the grey and final resin treated state.

During the course of determining the tear strength properties of the experimental fabrics a number of samples were encountered which did not yield any data by virtue of a gross disproportion in the tear strength of one system of yarns relative to the orthogonal yarns, which caused the fabric to tear in the wrong direction. In order to obtain a relative measure of the tear strength of these samples, the tails of the test specimens were folded, producing a "V"-like slot in the specimen rather than the standard straight line slit. Such an expedient results in tear strength data which are lower than the true values; however, it does permit some measure of relative tear strength in samples which otherwise would yield no useful data. An appropriate notation has been made wherever this procedure has been used.

TABLE 8. Per Cent Changes in Relative Weight and Cover Factor for USDA-Tear Experimental Fabrics

Sample	Relative Weight*	Relative Cover Factor**	Change in Total Relative Weight %	Change in Relative Cover Factor	
				Warp %	Filling %
1	2.83-1.90	15.5-12.0	Control	Control	
a	2.83-1.90	15.5-12.0	———	———	———
b	2.83-2.20	15.5-12.0	(+6.3)	———	———
c	2.83-1.90	15.5-10.4	———	———	(—13.3)
d	2.83-1.90	15.5-10.4	———	———	(—13.3)
e	2.83-2.20	15.5-12.0	(+6.3)	———	———
f	2.83-1.90	15.5-12.0	———	———	———
g	2.67-2.00	14.6-12.6	(—1.3)	(—5.8)	(+5)
h	2.67-2.00	14.6-12.6	(—1.3)	(—5.8)	(+5)
2	2.90-1.44	20.0-9.9	Control	Control	
a	2.90-1.44	20.0-9.9	———	———	———
b	2.90-1.44	20.0-9.9	———	———	———
c	2.90-1.44	20.0-9.9	———	———	———
d	2.90-1.55	20.0-9.8	(+2.5)	———	———
e	2.90-1.42	20.0-9.0	———	———	(—9.1)
f	2.90-1.42	20.0-9.0	———	———	(—9.1)
3	5.91-3.60	27.7-13.9	Control	Control	
a	5.91-3.60	27.7-13.9	———	———	———
b	5.91-3.60	27.7-13.9	———	———	———
c	5.68-3.67	26.6-14.2	—1.7	(—4)	(+2.1)
d	5.68-3.33	26.6-12.9	—5.3	(—4)	(—7.2)
e	5.68-3.33	26.6-12.9	—5.3	(—4)	(—7.2)
4	7.73-3.67	29.9-14.2	Control***	Control	
a	7.73-3.67	29.9-14.2	———	———	———
b	7.73-3.67	29.9-14.2	———	———	———
c	7.33-3.67	28.4-14.2	—3.5	(—5)	———
d	7.33-3.33	28.4-12.9	—6.5	(—5)	(—9.1)
e	7.33-3.67	28.4-14.2	—3.5	(—5)	———
f	7.33-3.33	28.4-12.9	—6.5	(—5)	(—9.1)
g	7.14-3.67	25.8-14.2	—5.2	(—13.7)	———
h	7.14-3.67	25.8-14.2	—5.2	(—13.7)	———

Note:
A (—) indicates that the sample does not differ from the control
*Relative Weight = threads per inch ÷ yarn count
**Relative Cover Factor = threads per inch ÷ $\sqrt{\text{count}}$
***Control #4 applies to Samples 5, 5a, and 5b as well as group #4

A. Effect on Tear Strength of Variations in Yarn and Fabric Geometry. The multiplicity of available comparisons among the variations in each of the four series of experimental fabrics and between these fabrics in the non-resinated and resinated states constitutes a formidable array of data. To facilitate the search for specific relationships between samples the reader is directed to the following tables and figures:

Series No.	Description	Table	Figure
1	Printcloth	9	6
2	Broadcloth	10	7
3	Sateen work clothing	11	8
4	Heavy-weight twills	12	9

Consider the histograms, *Figures 6, 7, 8* and *9*, representing the tear resistance of the variations and control for each of these series. While one could discuss in detail the changes in tear strength occasioned by each of the design variations it was considered more appropriate for the purpose of this paper to refer the reader to the Agricultural Research Service Publication Series, ARS 72-18, -19, and -20 for such a detailed discussion. Here, only the salient points of interest will be presented.

For the experimental fabrics examined in this work, the observations deemed most significant are as follows:

Warp Series No. 1 (Printcloth).

1. Use of a fancy weave (2x2 basket) is the most effective design feature for improving the level of tear strength.

2. Combining a longer float weave with a decrease in cover factor and heavier filling yarn resulted in the highest values of tear resistance in this set of fabrics.

3. Utilization of coarser (stronger) filling yarns in the plain weave samples with either a decrease in filling cover factor (Sample 1-C) or at the same cover factor (Sample 1-B) yielded significant improvements in fillingwise resistance to tear. Of particular interest is the observation that the resin treated tear strengths across filling yarns in Samples 1-B and

1-C are equivalent to the fillingwise tear strength of the nonresinated control fabric.

4. The combination of coarser filling yarns and lower filling cover factor resulted in a significant increase in the warpwise tear strength over the control for Sample 1-C in the resin treated state. This improvement in tear was not evident in the nonresinated fabrics, indicating interaction between the efficacy of the lubricating action of any softeners present in the resin bath and mobility of the fabric structure.

Warp Series No. 2 (Broadcloth).

1. Of particular interest in this series is the performance of the resin treated fabrics with respect to fillingwise tear. While the control fabric exhibited a 16.3 per cent loss in filling tear following resin treatment, the fillingwise resistance to tear of the resinated experimental fabrics was found to be equivalent to that of the unresinated control fabric except in one case. This case was fabric 2-F which displayed approximately 13.5 per cent higher tear strength than the control fabric finished without resin. Furthermore, this equivalence in resistance to tear was achieved despite losses in tensile strength which averaged about 40 per cent.

2. Very significant improvements in tear strength were realized in those variations incorporating weaves with longer floats (3/1 twill) or with two ends weaving as one (oxford). The influence of the weaves was most evident in the warpwise resistance to tear both in the nonresinated and resin treated fabrics.

3. Substitution of slightly coarser filling yarns with concomitant reductions in weight and/or cover factor was particularly successful in enhancing the tear strength across the filling yarn. It also effected a 9 per cent increase in the warpwise tear strength of the resin treated fabrics (Samples 2-D and 2-E).

Warp Series No. 3 (Sateen Work Clothing).

1. It is quite apparent that Sample 3-D is the most outstanding experimental fabric in this series. It has displayed the highest level of tear strength both across the warp and across the filling yarns. But of even greater significance is the evidence that its warpwise resistance to tearing following resin treatment is greater than that of the nonresinated counterpart.

2. The second point concerns the control fabric. In each of the other warp series in this research program it has been generally true that the tear strengths of the experimental fabrics have exceeded that of the control fabric. In this series, with one exception, the control fabric has demonstrated an equivalence or distinct superiority to the experimental variations with respect to resistance to tear.

3. The third item of interest is the failure, with one exception, of

TABLE 9. Tongue Tear and Other Pertinent Fabric Properties of the Control and Variations in the Warp No. 1 Series

Sample		Control	Variations							
			A[1]	B	C	D	E	F	G	H
Weave*		P	P	P	P	B	B	B	B	P
Nominal Yarn Size		W30s/1	30s/1	30s/1	30s/1	30s/1	30s/1	30s/1	30s/1	30s/1
		F40s/1	40s/1	30s/1	30s/1	30s/1	30s/1	40s/1	40s/1	40s/1
Fabrics Finished Sans Resin										
Thds/in.	W	85	85	85	85	85	84	84	79	82
	F	74	74	66	59	60	69	79	83	80
Crimp, %	W	4.4	3.9	4.3	4.6	2.6	2.7	1.9	2.4	3.9
	F	13.0	12.1	12.0	12.4	9.4	10.7	10.8	11.2	15.2
Yarn str	W	.73	.78	.75	.78	.81	.79	.79	.78	.75
(lb/end)	F	.57	.53	.80	.75	.63	.68	.52	.51	.56
Fabric tear str	W	1.69	1.68	1.68	1.73	4.86	4.05	3.77	3.67	1.62
(P_u), lb	F	1.27	1.33	1.59	1.59	3.43	3.12	2.84	2.81	1.30
Thds/peak**	W	1.25	1.31	1.31	1.33	2.22	2.10	2.15	2.14	1.28
	F	1.28	1.23	1.16	1.16	2.31	2.16	2.32	2.30	1.27
Resin Treated Fabrics										
Thds/in.	W	84	85	84	85	84	85	85	80	81
	F	74	73	65	59	61	69	78	82	80
Yarn str	W	.45	.45	.44	.45	.52	.54	.54	.53	.46
(lb/end)	F	.31	.30	.44	.41	.33	.34	.24	.24	.31
Fabric tear str	W	1.40	1.38	1.46	1.56	6.10[2]	4.28[2]	3.83[2]	4.12[2]	1.36
(P_u), lb	F	.97	1.04	1.21	1.23	3.88	3.45	2.42	2.38	1.04
Thds/peak**	W	1.50	1.52	1.50	1.54	2.54	2.58	2.50	2.42	1.45
	F	1.42	1.33	1.38	1.37	2.35	2.16	2.29	2.34	1.21
Monsanto crease	W	135°	138°	132°	140°	139°	139°	136°	136°	132°
angle	F	138°	127°	132°	135°	142°	143°	139°	145°	134°

*Weaves:
P—Plain
B—Basket 2x2

**Threads/peak—represents the average number of del yarns rupturing per peak (load drop) during one inch of tear.

[1]Fabric A differs from the control only in the direction of twist in the filling yarns.
[2]Tail of test specimen was folded to prevent tearing in the orthogonal direction.

AVERAGE TEAR STRENGTH P̄U (LBS)
WARP
1 CONTROL FABRIC
1A REVERSE TWIST IN FILLING YARNS
1F FABRIC WEAVE (2X2 BASKET)
1G WEAVE AND COVER FACTOR
1D WEAVE AND C.F.''' FILLING YARN SIZE
1E WEAVE AND WEIGHT
1H COVER FACTOR
1B USE OF COARSER FILLING YARNS — CONSTANT C.F.''' / CONSTANT WEIGHT
" TAILS FOLDED
''' COVER FACTOR
UNRESINATED
RESINATED
FILLING
1 CONTROL FABRIC
1A REVERSE TWIST IN FILLING YARNS
1F FABRIC WEAVE (2X2 BASKET)
1G WEAVE AND COVER FACTOR
1D WEAVE AND C.F.''' FILLING YARN SIZE
1E WEAVE AND WEIGHT
1H COVER FACTOR
1B USE OF COARSER FILLING YARNS — CONSTANT C.F.''' / CONSTANT WEIGHT

Figure 6. Tear strength data for Warp No. 1 series (print cloth).

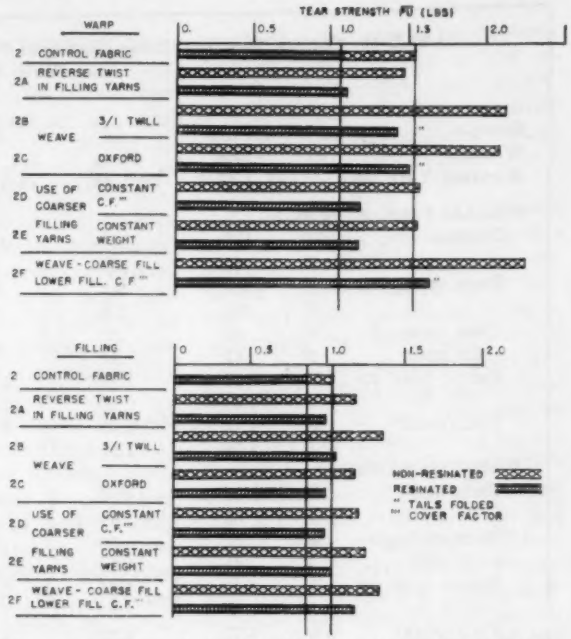
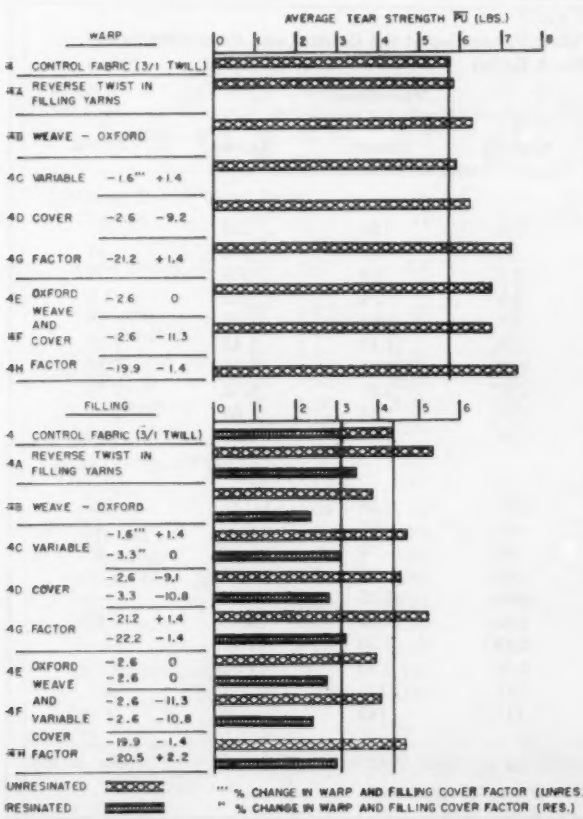

TEAR STRENGTH P̄U (LBS)
WARP
2 CONTROL FABRIC
2A REVERSE TWIST IN FILLING YARNS
2B 3/1 TWILL WEAVE
2C OXFORD
2D USE OF COARSER FILLING YARNS — CONSTANT C.F.''' / CONSTANT WEIGHT
2E
2F WEAVE - COARSE FILL LOWER FILL. C.F.'''
FILLING
2 CONTROL FABRIC
2A REVERSE TWIST IN FILLING YARNS
2B 3/1 TWILL WEAVE
2C OXFORD
2D USE OF COARSER FILLING YARNS — CONSTANT C.F.''' / CONSTANT WEIGHT
2E
2F WEAVE - COARSE FILL LOWER FILL. C.F.'''
NON-RESINATED
RESINATED
" TAILS FOLDED
''' COVER FACTOR

Figure 7. Tear strength data for Warp No. 2 series (broad cloth)


AVERAGE TEAR STRENGTH P̄U (LBS.)
WARP
4 CONTROL FABRIC (3/1 TWILL)
4A REVERSE TWIST IN FILLING YARNS
4B WEAVE - OXFORD
4C VARIABLE — −1.6''' +1.4
4D COVER — −2.6 −9.2
4G FACTOR — −21.2 +1.4
4E OXFORD WEAVE — −2.6 0
4F AND COVER — −2.6 −11.3
4H FACTOR — −19.9 −1.4
FILLING
4 CONTROL FABRIC (3/1 TWILL)
4A REVERSE TWIST IN FILLING YARNS
4B WEAVE - OXFORD
4C VARIABLE — −1.6''' +1.4 / −3.3'' 0
4D COVER — −2.6 −9.1 / −3.3 −10.8
4G FACTOR — −21.2 +1.4 / −22.2 −1.4
4E OXFORD WEAVE — −2.6 0 / −2.6 0
4F AND VARIABLE COVER — −2.6 −11.3 / −2.6 −10.8
4H FACTOR — −19.9 −1.4 / −20.5 +2.2
UNRESINATED
RESINATED
''' % CHANGE IN WARP AND FILLING COVER FACTOR (UNRES.)
'' % CHANGE IN WARP AND FILLING COVER FACTOR (RES.)

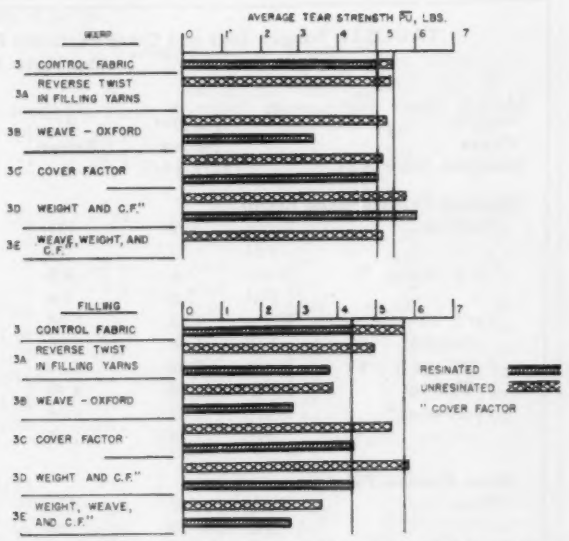


Figure 8 (above). Tear strength data for experimental Warp No. 3 series (sateen work clothing).

Figure 9 (left). Tear strength data for Warp No. 4 series (work clothing twill).

TABLE 10. Tongue Tear and Other Pertinent Fabric Properties of the Control and Variations in the Warp No. 2 Series

Sample		Control	Variations					
			A[1]	B	C	D	E	F
Weave		Plain	Plain	3/1 Twill	Oxford	Plain	Plain	Oxford
Nominal Yarn Size		48/1-48/1	48/1-48/1	48/1-48/1	48/1-48/1	48/1-40/1	48/1-40/1	48/1-40/1
Finished Fabric Sans Resin								
Thds/in.	W	138	137	137	140	137	137	140
	F	69	70	71	69	65	61	62
Yarn crimp, %	W	8.6	9.1	5.0	3.5	9.9	8.5	5.0
	F	2.8	2.5	4.6	9.2	2.2	3.5	7.9
Yarn strength	W	.51	.52	.58	.54	.54	.52	.53
(lb/end)	F	.51	.47	.42	.48	.65	.63	.55
Fabric tear str	W	1.57	1.50	2.16	2.13	1.60	1.58	2.29
(P_t), lb	F	1.04	1.19	1.38	1.18	1.22	1.27	1.35
Thds/peak*	W	1.75	1.63	1.73	2.50	1.78	1.67	2.50
	F	1.19	1.25	1.36	1.25	1.16	1.13	1.24
Resin-Treated Fabric								
Thds/in.	W	138	137	138	139	139	137	138
	F	69	68	69	63	63	61	61
Yarn strength	W	.30	.30	.34	.32	.29	.30	.32
(lb/end)	F	.31	.30	.24	.27	.38	.35	.32
Fabric tear str	W	1.10	1.09	1.42[2]	1.54[2]	1.20	1.20	1.66[2]
(P_t), lb	F	0.87	1.00	1.06	0.99	1.00	1.04	1.18
Thds/peak*	W	1.72	1.71	1.68	2.78	1.80	1.67	2.70
	F	1.33	1.31	1.33	1.33	1.26	1.33	1.30
Monsanto crease	W	143	141	141	136	145	143	137
angle, degrees	F	130	120	140	133	128	126	129

*Thds/peak—represent the average number of del yarns rupturing per peak (load drop) during one inch of tear in the fabric.
[1]Fabric A differs from the control only in the direction of twist in the filling yarns.
[2]Tail of test specimen was folded to prevent tearing in the opposite direction.

TABLE 11. Tongue Tear and Other Pertinent Fabric Properties of the Control and Variations in the Warp No. 3 Series

Sample		Control	Variations				
			A[1]	B	C	D	E
Weave		Sateen	Sateen	Oxford	Sateen	Sateen	Oxford
Nominal Yarn Size		22/1-15/1	Same as Control Fabric				
Finished Fabrics (Sans Resin)							
Thds/in.	Warp	132	131	130	126	126	125
	Fill	57	56	54	58	50	47
Yarn crimp, %	Warp	7.4	6.9	13.5	7.0	5.8	11.3
	Fill	7.6	6.4	8.4	7.4	7.2	7.0
Yarn str	Warp	1.04	1.06	.87	1.01	1.07	.86
(lb/end)	Fill	1.46	1.38	1.59	1.43	1.42	1.55
Fabric tear str	Warp	5.43	5.38	5.28	5.16	5.76	5.15
(P_t), lb	Fill	5.68	4.90	3.82	5.37	5.79	3.55
Thds/peak*	Warp	1.61	1.54	2.76	1.58	1.62	2.60
	Fill	1.24	1.25	1.29	1.32	1.28	1.09
Resin Treated Fabrics							
Thds/in.	Warp	130	130	131	126	125	125
	Fill	55	55	52	57	50	47
Yarn str	Warp	.75	.75	.62	.78	.78	.61
(lb/end)	Fill	.96	.91	1.25	.98	.93	1.10
Fabric tear str	Warp	5.03	——	3.42	5.05	6.12	——
(P_t), lb	Fill	4.38	3.75	2.82	4.42	4.41	2.75
Thds/peak*	Warp	1.86	——	2.38	1.88	1.95	——
	Fill	1.41	1.25	1.44	1.46	1.35	1.42
Monsanto	Warp	108	115	116	111	117	121
crease angle, deg	Fill	143	135	117	142	145	123

*Threads/peak—represent the average number of del yarns rupturing per peak (load drop) during one inch of tear in the fabric.
[1]Fabric A differs from the control only in the direction of twist in the filling yarns.

those experimental fabrics which displayed higher tear strength than the control in the nonresinated state to maintain this superiority in the resinated state. The signal exception was Sample 3-D, which was produced with a slight reduction in weight and cover factor.

Warp Series No. 4 (Heavy Weight Twills).

The warpwise tear strength for the resin treated samples is not included in *Figure 9* since all of the tests were performed with folded tails, and it is believed that for this weight class of fabrics this artifice obscures the existing relationship of tear strength among these fabrics. Moreover, the extent to which the apparent tear strengths of the variations fluctuated above and below that of the control was considered negligible.

1. Perhaps the most important finding to come out of the tear strength studies of this series of fabrics is the poor showing of the variation samples following resin treatment. In all but one case, any improvement in filling tear strength, occasioned by a variation in geometry, manifested in the nonresin-treated state was virtually wiped out in the resinated state. In the single instance (reverse twist in filling yarn) where the enhancement in fillingwise tear was carried over into the resinated state the extent of the increase was reduced to almost half of that observed in the sans-resin fabrics.

The reason this point is considered important is the fact that both sets of work clothing samples (Warps 3 and 4) exhibited this undesirable behavior, while the lightweight fabrics, print and broadcloths, generally displayed an equivalence in the per cent change in tear (control vs variation) for the nonresinated and resin-treated samples and quite often the per cent increase in tear of the resinated variations was greater than that of the nonresin-finished counterparts. An explanation of this diversity in the response of the light and heavyweight goods to resin treatment has not been found, and further work on this area has been recommended.

2. Another point of interest stemming from the work on this warp series is the interaction between weave, reduced cover factor, and resin treatment. Here it was found that lowering the cover factor of the nonresinated 3/1 twill and oxford weaves resulted in increases in tear strength of various extents, dependent on the degree of reduction in cover factor. The extent of improvement of the 3/1 twills was based on the tear strength of the control fabric while that of the oxford weaves was based on the tear strength of Sample 4-B, an oxford weave equivalent in construction to the control fabric.

When these fabrics were resin-treated, the 3/1 twills with re-

TABLE 12. Tongue Tear and Other Pertinent Fabric Properties of the Control and Variation in the Warp No. 4 Series

			Variations							
Sample		**Control**	**A[1]**	**B**	**C**	**D**	**E**	**F**	**G**	**H**
Weave		**3/1 Twill**	**3/1 Twill**	**Oxford**	**3/1 Twill**	**3/1 Twill**	**Oxford**	**Oxford**	**3/1 Twill**	**Oxford**
Nominal Yarn Size	W	15/1	15/1	15/1	15/1	15/1	15/1	15/1	14/1	14/1
	F	15/1	15/1	15/1	15/1	15/1	15/1	15/1	15/1	15/1
Finished Fabric (Sans Resin)										
Thds/in.	W	117	118	119	115	114	114	114	104	106
	F	55	55	55	56	50	55	49	56	56
Yarn crimp, %	W	10.5	10.2	12.5	9.6	8.1	11.2	10.6	9.9	9.1
	F	8.3	9.3	13.0	10.0	9.2	13.3	12.6	10.3	15.8
Yarn str	W	1.32	1.37	1.23	1.34	1.37	1.17	1.40	1.60	1.62
(lb/end)	F	1.47	1.51	1.55	1.46	1.28	1.71	1.67	1.62	1.79
Fabric tear str	W	5.82	5.86	6.35	.93	6.30	6.81	6.80	7.25	7.44
(P_s), lb	F	4.43	5.38	3.92	4.76	4.57	4.03	4.16	5.29	4.74
Thds/peak*	W	1.58	1.57	2.34	1.58	1.54	2.54	2.28	1.71	2.65
	F	1.22	1.20	1.28	1.22	1.19	1.34	1.36	1.30	1.40
Resin Treated Fabrics										
Thds/in.	W	117	117	119	113	113	114	114	103	105
	F	54	55	53	54	48	54	48	53	55
Yarn str	W	.98	.99	.90	.99	1.04	.86	.97	1.18	1.19
(lb/end)	F	.99	1.05	1.15	.96	.90	1.26	1.10	1.00	1.37
Fabric tear str	W[2]	4.20	4.26	4.09	4.09	4.33	4.16	4.36	4.33	4.29
(P_s), lb	F	3.14	3.51	2.36	3.16	2.83	2.76	2.41	3.26	3.03
Thds/peak*	W	1.46	1.50	2.02	1.47	1.47	2.28	2.11	1.34	1.91
	F	1.32	1.28	1.13	1.28	1.30	1.42	1.37	1.43	1.31
Monsanto crease	W	128	132	106	128	125	110	110	124	107
angle, degrees	F	110	106	111	110	112	116	116	107	108

*Threads/peak—represent the average number of del yarns rupturing per peak (load drop) during one inch of tear.
[1]Fabric A differs from the control only in the direction of twist in the filling yarns.
[2]All warp tear tests on resin treated samples were performed with specimen tails folded to prevent tearing in opposite direction.

duced cover factors which formerly had displayed higher values of tear than the control now exhibited comparable or lower levels of tear strength. The oxfords, on the other hand, continued to display higher levels of tear strength in those resin treated samples which had reduced cover factors.

3. The single variation which evidenced higher tear strength (fillingwise) than the control in the resinated state was Sample 4-A, which utilized reverse twist in the filling yarns.

B. Effect of Finishing Process on Tear Strength of Experimental Fabrics. In light of the significant losses in tear strength observed in the commercial fabrics (studied at the outset of this program) as a result of the preparatory treatments (desizing, scouring, and bleaching), it seemed germane to the purpose of this research to compare the changes in tear strength of the experimental fabrics occasioned by preparatory treatments with those resulting from resin treatment. Since the response of a fabric to various finishing treatments is often a function of weave type, the following comments will include comparisons among plain weave samples, among fancy weaves, and between plain weave and fancy weave groups.

Table 13 contains a summary of the absolute and percentage changes in resistance to tear observed in the "prepared" and resinated goods. An examination of these data will reveal the following rather important points:

1. The preparatory treatments usually had a more deleterious effect on the tear resistance of the experimental cotton fabrics than did the resin treatments.

2. The most distortable fabrics, e.g., weaves with long floats, in each series, exhibited the largest losses in tear strength following the preparatory treatments.

3. The tear strength across the warp yarns is more adversely affected by preparatory finishing treatments than is the case for the fillingwise tear. Some of this difference is believed to be due in part to removal of warp size and also to structural changes occasioned by processing, principally crimp changes.

4. The lightweight twills and oxfords, Warp Series No. 2, display appreciably larger absolute and percentage losses in tear strength due to preparatory finishing treatments than do the heavy weight twill and oxford fabrics. On the other hand, the absolute and percentage reduction in tear strength of the lightweight twills and oxfords occasioned by resin treatment is considerably less than that observed in the heavy weight twills and oxfords.

The above observations strongly point to a need for research on ways and means of reducing the truly significant losses in resistance to the propagation of a tear through a cotton fabric resulting from the preparatory wet finishing treatments.

TABLE 13. Summary of Changes in Tear Strength of Experimental Fabrics Occasioned by Wet Finishing Treatments

Series	Weave	Sample	Prep[1]	Resin[2]	Prep	Resin
1	Plain	Warp	—2.23	—0.25	—55.8	—14.8
		Filling	—0.90	—0.32	—38.9	—22.4
	2x2 Basket	Warp	—13.33	+0.27*	—77.6	+11.6
		Filling	—4.24	—0.02	—57.7	—1.6
2 Broadcloth	Plain	Warp	—1.55	—0.42	—49.7	—26.5
		Filling	—0.72	—0.20	—38.0	—17.1
	3/1 Twills & Oxfords	Warp	—4.68	—0.65*	—68.0	—29.5
		Filling	—1.16	—0.23	—42.0	—17.3
3 Sateen	Sateens	Warp	—5.40	—0.16	—49.7	—3.1
		Filling	—2.40	—1.20	—30.5	—21.9
Work Clothing	Oxfords	Warp	—1.61	—1.86	—23.4	—35.2
		Filling	+0.07	—0.90	+2.1	—24.3
4 Heavy Weight Twills	3/1 Twills	Warp	—3.77	—1.93*	—37.6	—30.5
		Filling	—0.85	—1.71	—14.9	—34.8
	Oxfords	Warp	—2.10	—2.62*	—23.4	—38.2
		Filling	+0.28	—1.57	+9.8	—37.4
		Average	—2.77	—0.87	—37.5	—21.4

*Tails folded.

[1]Grey goods vs nonresinated finished goods.
[2]Nonresinated finished goods vs resin-finished goods.

C. Tear Strength of Certain Resin-Treated Experimental Fabrics Compared to Tear Strength of Unresinated Control Fabrics. Up to this point, attention has been focused on the relationship between the tear strength of the control fabric and that of the variation or experimental fabric at the same stage of finishing. However, implicit in the aims of this research program is the goal to produce a fabric which in the resin-treated state has equivalent or better resistance to tear than it possessed in the nonresin-treated state.

There are two distinct approaches to this end, one dealing with the chemistry of the problem and the other with the physics or mechanics of the problem. This research is concerned with the latter. Obviously, there is also a third approach which is a combination of the first two. However, such a study was not within the scope of the present work.

It is gratifying to observe that thirteen experimental fabrics, representing several variations in each of three out of the four warp series studied herein, have exhibited levels of tear strength in the resin-finished samples which are comparable or superior to that of the unresinated control fabric. Eight of these variations displayed this desirable relationship in both the warp and filling directions. It is extremely significant to note that eleven of these thirteen variations represent the lightweight printcloth and broadcloth fabrics. This is further confirmation of the need for research aimed at under-

TABLE 14. Tear Strength and Pertinent Fabric Parameters of Resinated Experimental Fabrics Which Exhibited Tear Resistance Comparable or Equivalent to That of the Nonresinated Control Fabric

Sample	Total Relative Weight	Relative Cover Factor Warp	Relative Cover Factor Filling	Weave	Filling Yarn Size	Avg Tear Str (lb) Warp	Avg Tear Str (lb) Filling
Control 1**	4.68	15.5	11.7	Plain	40/1	1.69	1.27
1C	4.80	15.5	10.8	Plain	30/1	1.56	1.23
1D	4.83	15.3	11.1	2x2 Basket	30/1	6.10*	3.88
1E	5.13	15.5	12.6	2x2 Basket	30/1	4.28*	3.45
1F	4.78	15.5	12.3	2x2 Basket	40/1	3.83*	2.42
1G	4.72	14.6	12.9	2x2 Basket	40/1	4.12*	2.38
Control 2**	4.31	19.9	10.0	Plain	48/1	1.57	1.04
2A	4.27	19.8	9.8	Plain	48/1	——	1.00
2B	4.31	19.9	10.0	3/1 Twill	48/1	1.44*	1.06
2C	4.31	20.0	9.8	Oxford	48/1	1.54*	.99
2D	4.47	20.0	10.0	Plain	40/1	——	1.00
2E	4.37	19.8	9.6	Plain	40/1	——	1.04
2F	4.39	19.9	9.6	Oxford	40/1	1.66*	1.18
Control 3**	9.80	28.1	14.7	Sateen	15/1	5.43	5.68
3C	9.53	26.9	14.7	Sateen	15/1	5.05	——
3D	9.01	26.6	12.9	Sateen	15/1	6.12	——

* Tails folded.
**All data obtained from resin treated samples except for control fabrics.

standing the mechanics of tear in heavy weight cotton goods.

The details of the tear strength and other pertinent properties of the resinated variations which were found comparable or superior to the nonresinated control in resistance to tear are listed in *Table 14*. It is interesting to note that in every case where both the warp and filling tear of the resin-treated variation manifest equal or greater tear strength than that of the nonresinated control, the fabric weave has been changed from a plain weave to a fancy weave. Fancy is used in the sense that the weave incorporates longer floats but is nevertheless one of the standard weaves.

The use of coarser filling yarns in combination with either a weave variation or change in cover factor has also yielded excellent results. In one case (2-A) the adoption of reverse twist in the filling yarns produced a level of fillingwise tear strength in the resin finished fabric equal to that of the control fabric without resin. The two examples of this sort of relationship in the heavy weight fabrics were both from the Warp No. 3 sateen work clothing series. In these samples only the warpwise tear of the resinated fabric was comparable to the nonresin-treated control. Sample 3-D, which had reduced cover factors in the warp and filling, displayed appreciably higher warpwise tear strength in the resin-finished samples than its nonresinated control.

D. Evaluation of Other Fabric Properties of Certain Resinated Experimental Fabrics Which Displayed Improved Tear Strength. The foregoing discussions have emphasized the analyses of tear strength as it is affected by variations in yarn and fabric construction. It would be naive to imagine that the variety of structural changes discussed in this work are only influencing the ability of a fabric to resist the propagation of a tear. Clearly other fabric proper-

TABLE 15. Summary of Fabric Properties of Resinated Fabrics Which Displayed Improved Tear Strength

Sample*	Weave	Change** in Tear Strength Warp %	Change** in Tear Strength Fill %	Abrasion Resistance No. of*** Cycles	Loss in Tensile Warp %	Loss in Tensile Fill %	Drape Coeff. (%F)	Monsanto Crease Recovery Warp	Monsanto Crease Recovery Fill	Ravel Strip Tensile Warp lb	Ravel Strip Tensile Fill lb
No. 1 Control	Plain	——	——	244	20	50	58.3	135°	138°	38	23
1C	Plain	+11	+27	244	19	54	59.3	140°	135°	38	24
1D	2x2 Basket	+336	+300	244	30	61	53.8	139°	142°	44	20
No. 2 Control	Plain	——	——	229	50	0	60.6	143°	130°	41	21
2E	Plain	+9	+20	229	66	6	60.5	143°	126°	41	22
2F	Oxford	+51	+36	229	7	58	58.6	137°	129°	45	19
No. 3 Control	Sateen	——	——	338	10	0	65.0	108°	143°	98	53
3D	Sateen	+22	0	338	20	0	65.6	117°	145°	98	47
No. 4 Control	3/1 Twill	——	——	1125	0	0	76.5	128°	110°	115	54
4A	3/1 Twill	0	+12	1125	17	1	70.6	132°	106°	116	58

* All samples have been resin treated.
** Based on tear strength of control fabric.
***No. of cycles represent 75% of average number of cycles necessary to produce a hole, using a Tabor Abrader with CS10 wheels and 250-gram head load.

ties may also be affected: tensile strength, abrasion resistance, drapability, and crease recovery. Evaluations of these properties were made and the details may be found in *Table 15*.

Based on the data presented in *Table 15*, it appears reasonable to conclude that in most cases the variations in fabric structure which produced significant improvements in tear strength did not produce significant adverse concomitant changes in other important fabric properties. Moreover, in certain cases the structural variation effected improvements in other fabric properties, such as drape and crease recovery.

CONCLUSION

The influence of fabric structure on the tear strength of cotton fabrics in both the nonresin-treated and resinated states has been discussed. The variations in fabric geometry which have been examined included such factors as yarn size, direction of yarn twist, number of yarns per inch, and weave types. These factors have been varied individually and in a number of combinations.

FREE REPRINTS

of this paper, together with the 12 additional ones given at the 1960 Cotton Research Clinic, are available in booklet form. Address requests to the National Cotton Council, Room 502 Ring Building, 1200—18th St., N. W., Washington 6, D. C., or to The Editors, "Textile Industries," 806 Peachtree St., N. E., Atlanta 8, Ga.

The anticipated reductions in tear strength resulting from the application of resin treatment have been minimized in certain cases, and completely thwarted in many cases by the use of structural variations more ideally suited to resisting the propagation of a tear than the original control fabric. While the precise numerical effect of changes in construction can not yet be predicted, it is possible to state that reductions in longitudinal cover factor, improved crimp balance, enhanced distortability resulting from the use of weaves with longer floats, and the judicious utilization of fewer coarser, stronger yarns will usually result in fabrics with significantly improved tear strength. In many cases, these variations have produced structures which exhibit higher tear strength in the resin-treated state than that displayed by the control fabric in the nonresinated state.

It has been emphasized that a great deal of experimental work remains to be done to explain the lack of response of the heavy weight fabrics, in the resin-treated state, to variations in fabric structure which have proved successful in the lighter weight fabrics. This work has also pointed to the need for investigation into methods of reducing the severe losses in tear strength observed in the fabrics which have received only the preparatory wet finishing treatments, i.e., desizing, scouring, and bleaching.

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1959 world man-made fiber output 8% over previous high

■ WORLD production of man-made textile fibers in 1959 reached the record level of 7,010,000,000 pounds, 16 per cent above 1958 and also 8 per cent above the previous high of 6,488,000,000 pounds produced in 1957, according to the *Textile Organon*, statistical bulletin of the Textile Economics Bureau, Inc.

The 1959 total was made up of 5,560,000,000 pounds of rayon and acetate (an increase of 11 per cent over 1958), 1,268,000,000 pounds of non-cellulosic fibers (up 38 per cent), and 182,000,000 pounds of textile glass fiber (up 43 per cent).

The current world man-made fiber producing capacity was reported to be 9,527,000,000 pounds for all man-made fibers. By 1961 the capacity is expected to increase to 10,593,000,000 pounds or 50 per cent over the current level of production. World rayon and acetate capacity is currently 7,444,000,000 pounds and is expected to increase by 5 per cent to 7,835,000,000 pounds by the end of 1961. For the non-cellulosic man-made fibers, the current capacity is placed at 1,825,000,000 pounds and is projected to 2,380,000,000 pounds, an increase of 30 per cent, by December 1961.

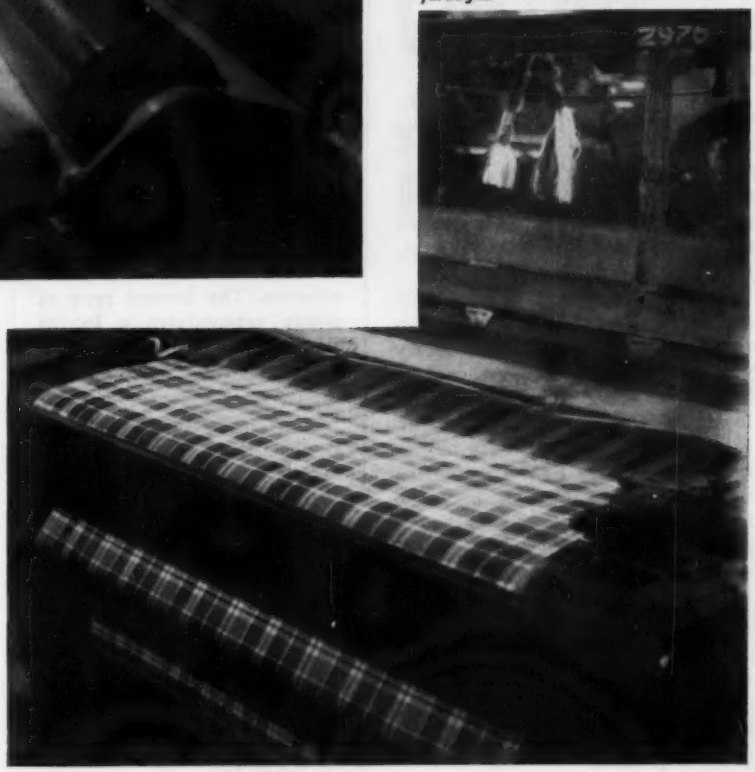
The United States continued as the world's leading producer of cellulosic fibers, with a 1959 production total of 1,167,800,000 pounds last year. Japan was the second largest producer with 848,300,000 pounds. West Germany held third place with 527,000,000 pounds, and the United Kingdom was fourth with 429,400,000 pounds.

Next in order were the USSR with 364,700,000 pounds, Italy with 342,800,000 pounds, East Germany with 305,000,000 pounds, and France with 242,100,000 pounds.

The United States was also the largest producer of non-cellulosic man-made fibers with a total of 645,300,000 pounds in 1959. Japan held second place with 177,200,000 pounds. The United Kingdom produced an estimated 85,300,000 pounds, West Germany 85,200,000 pounds, France 72,200,000 pounds, and the USSR 30,000,000 pounds. Significant increases in non-cellulosic fiber producing capacity are planned in France, West Germany, Japan, and the United Kingdom, as well as the United States.

With the adoption of CMC came an unexpected drop in needed size pick-up. Depending on warp specification, pick-up now ranges from five to nine per cent instead of the former twelve to twenty per cent.

The reduction in solids permits an eight-per-cent increase in loom beam yardages.



Faced with the task of reducing stream BOD, Dan River Mills, Inc., chose CMC rather than build a disposal plant

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CMC kayoed stream pollution

THE SEARCH for economical stream pollution control —one that has been under way for many years—has finally brought CMC (carboxymethyl cellulose) warp size to Dan River Mills, Inc., on a production basis. This old, well-established textile company has been using CMC experimentally for about five years; but for more than a year the material has been used in production slashing operations in No. 2 division (grey mill) on all-cotton fancy dress goods.

Many textile plants are located on small streams which have no capacity for handling the waste load imposed upon them by the textile mills. During the summer months, decreasing water flows and increasing water temperatures increase the rates of chemical and biological reactions and thus accentuate dissolved oxygen depletion. Dan River Mills however is in a fortunate position.

Usually, the desizing wastes constitute from 50-60% of the pollution load. Therefore, since these wastes result from the slashing operation, Dan River decided that the key to this problem would be found if a size with a lower BOD content was obtainable. The research division was brought into the picture and, after some experimentation, recommended that CMC warp size be substituted on an experimental basis for the conventional size then in use.

The minimum flows and higher river temperatures of the Dan river, which occur during the summer months in certain years, are such that the reduction of the waste load by the 50-60% level is

satisfactory for the protection of the stream during the low flows.

Carboxymethyl cellulose has a BOD, but the rate of its exertion in the stream is many times less than starch. This allows the stream to use its natural powers of reaeration from rapids and air to maintain the dissolved oxygen at a satisfactory level to maintain the normal aerobic biological activities.

Briefly, CMC was chosen because its BOD is from 1-3% as compared to 60-80% for many other sizes. (NOTE: It must be remembered that several preparations on the market give figures somewhat below the 60-80% level, even as low as 20%.)

The compelling reason, of course, which necessitated a change in warp size after so many years was the fact that the company had been told that it must lower BOD of waste it was putting in the Dan river. Thus, either a new size had to be found which would do this job or a waste treatment plant built (costing an estimated $2,000,000 to construct and between $200,000 and $300,000 a year to operate).

This is not to say that the cost of using CMC is by any means small. On the contrary, during the development of CMC as a sizing agent, the costs of sizing are considerably greater than with conventional sizing agents. Nevertheless, as more experience is gained, it is believed that the difference in the cost of sizing between the two materials will be narrowed.

Unexpected Benefits. As previously mentioned, the motivating factor behind the change to CMC was entirely a matter of reducing BOD of waste. However, once it came in on a production basis, other advantages began to crop up. Here is a partial list of these improvements:

1. With the use of CMC, it has been possible to reduce the humidity in the weave rooms. This, in turn, has been beneficial in several ways other than in mere savings in water.

   (a) A reduction in shedding in both the weaving and slashing rooms has been achieved, a very important factor in improving the operations of these departments

   (b) A lessening of the rust problem

   (c) An improvement in the preservation of paint and the maintenance of the building

   (d) An increase in the life of the leather strappings on the looms

2. CMC is soluble in water, which means in essence that once the mill has converted completely to this sizing agent, a $30,000 to $40,000 yearly saving will be realized through the elimination of enzymes.

3. Add-on (size pick-up) now ranges from 5-9%, down from a previous 12-20%. The very fact that less solids are added to the yarn permits in itself about an 8% increase in loom beam yardage and a consequent improvement in efficiency in terms of less waste, less downtime, and less labor.

4. The "hard size" problem which has plagued the weave rooms for years has now been licked where CMC is used, as the surface of the size does not congeal when a slasher is stopped for any length of time.

Starch waste decomposes very rapidly unless its pH is kept at a rather high level, a condition obviously not easily met at Dan River Mills. As a result, the oxygen demand placed on the stream, the Dan river, exceeded the level fixed by the State of Virginia.

It is this bacterial oxygen demand (BOD) that kills stream life by drawing oxygen from the water to carry on the process of decomposition. It is not to be confused with pollution induced by the dumping of untreated human or other animal wastes into streams. The former type of waste asphyxiates a lot of fish; the latter type spreads diseases.

THE EDITORS

5. Loom stops are certainly no worse than before, and often are less.

Remaining the same are the time cycle for preparation of the size, the amount of wax added as a lubricant (4-5%), and the production speeds.

(NOTE: Yarn counts in No. 2 division range from 11s to 54s (52 to 11 tex), with the average around 30-40, while the number of ends/warp range from 2,000 to 6,000. Size box temperatures are maintained at about 200 F. Slashers are two-cylinder Saco-Lowell machines having one 7′ and one 5′ can. Looms are box with either dobby or cam.)

Two Other Divisions Involved. There are two other divisions involved in the changeover from conventional size to CMC, No. 1 division and Riverside division. The No. 1 division makes sheetings and other wide and narrow cam loom goods on looms ranging from 46″ to 100″ wide. Plain goods, combed and carded sheetings, and chambrays are woven on these looms.

This division employs high-speed slashers, with 9 and 10 small cans, and has been sizing carded yarn with CMC on 45″ and 48″ goods. In addition, it has been experimenting on fabrics up to 90″. In some instances, a combination size mix made up of ⅓ CMC and 2/3 other regular material has been used. Results generally have been promising.

The Riverside division is gradually changing over as fast as caution permits, and is now somewhat beyond the half-way mark. The wide diversification of fabrics produced in this division (dress goods, draperies, cords, chambrays, oxfords, combed broadcloth, etc.) make it necessary to proceed slowly and evaluate carefully in order to avoid soft warps. This division uses mostly large-can slashers, although there are some 9 and 5 small-can slashers in place.

The policy of Dan River's management is to move ahead on all fronts where operations can be improved and costs reduced. It is certain that as time goes on, many other products now being tried experimentally will bring further far-reaching changes.

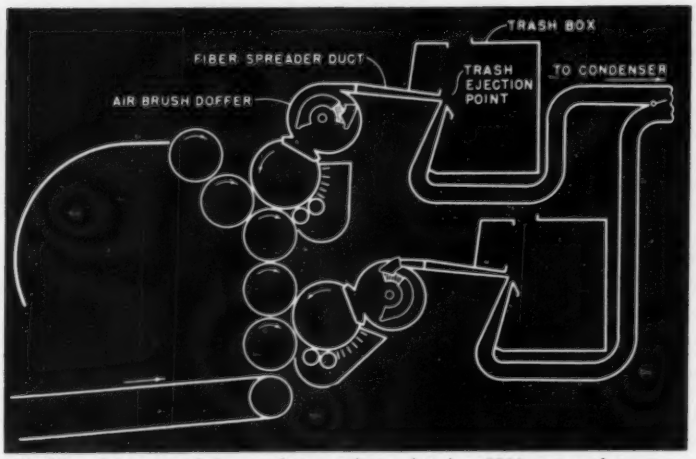


FIGURE 1. Schematic of the aerodynamic cleaner fitted to SRRL opener-cleaner.

Cleaning Cotton by Air

by Roy A. Hetherwick and Heber W. Weller
Southern Regional Research Laboratory[1]

THE RESEARCH program of the Southern Regional Research Laboratory to develop improved means for cleaning roughly harvested cotton at the mills has resulted in the development of an aerodynamic type cleaner. The cleaner, designed for use with the SRRL opener-cleaner (1)[2], is attached to and becomes an integral part of the opener-cleaner. This paper describes the laboratory evaluation of the aerodynamic cleaner and of two cotton cleaning lines, one of which includes the aerodynamic cleaner. The unit increases the cleaning efficiency of the opener-cleaner by one-third without adverse effects on fibers or yarns. It adds little to the original cost of the opener-cleaner, but does require a greater air supply than that available from conventional textile mill condensers with integral fans.

Figure 1 shows a schematic diagram of the SRRL opener-cleaner equipped with the new air type cleaner. The opening and cleaning features of the opener-cleaner are not changed by the addition of the air cleaner.

The original brush doffers are replaced with air-brush doffers (2) which also act as centrifugal fans. In the process of removing the cotton from the cleaning cylinders, the cotton is further opened and some of the remaining trash loosened by the mechanical and aerodynamic forces exerted by the doffers. The cotton is discharged into a specially shaped duct at a velocity of approximately 1600 fpm. The design of the duct is such that the cotton is spread into a wide, thin sheet (3).

As the cotton and trash leave the discharge duct, the cotton is pulled away at a sharp angle by the condenser suction. Motes and trash take a different path from

TABLE 1

Increase in Cleaning Obtained by Adding Aerodynamic Cleaner to Opener-Cleaner

Cotton Variety	Cotton Grade	Staple (in.)	Increase in Cleaning (%)*
Acala 4-42	SLM	1 3/32	18.9
Acala 4-42	SLM-M(Grassy)	1 3/32	38.5
Acala 4-42	SLM(Grassy)	1 3/32	42.7
Unknown	LM+	1 1/32	36.5
Deltapine 15	LM	1 1/16	12.5
Unknown	LM	15/16	18.9
Deltapine	SGO	1 1/16	43.0
Deltapine-Fox	SGO	1 1/16	33.2
3-bale blend	——	29/32	53.4
		Average	33.1

*Compared with Opener-Cleaner alone, and determined by Shirley Analyzer.

TABLE 2

Physical Properties of Cottons Processed

Variety	Mean Trash Content[1] (%)	Classers' Grade	Classers' Staple (in.)	Micronaire Reading	Maturity[2] (%)
Paymaster	5.4	SLM	31/32	5.0	85
Acala 4-42	3.6	SLM	13/16	3.9	76
Deltapine 15	5.1	SGO	11/32	4.5	79

[1] Determined by Shirley Analyzer.
[2] NaOH swelling method

[1]One of the laboratories of the Southern Utilization Research and Development Division, Agricultural Research Service, U. S. Department of Agriculture. It is located at New Orleans, La.
[2]Numbers in parentheses designate references at the end of the paper.

that of the cotton and are ejected into the trash box. Also, some of the lighter trash is removed by impact of the cotton striking the outer edge of the suction duct.

The air velocity at the suction intake is about 3500 feet per minute. The net quantity of condenser air required for the two air cleaning units is 4000 cubic feet per minute. Due to losses in the condenser and conveying system the condenser fan must have a capacity of about 5000 cubic feet per minute.

Two series of experiments were conducted to evaluate the aerodynamic cleaner under pilot scale conditions. In the first series, the cleaning efficiency of a standard SRRL opener-cleaner was determined in comparison with the cleaning efficiency of an opener-cleaner equipped with the aerodynamic cleaner. Eight types of cotton and a three-bale blend were processed in equal lots through the two machines at a production rate of 1500 pounds per hour. Cleaning efficiency was determined by Shirley Analyzer[2] tests of each lot before and after processing.

In the second series, three varieties of cotton representative of short staple, and medium staple raingrown and medium staple irrigated growths were processed through two arrangements of opening lines as follows:

1. The control line consisted of a hopper-feeder, spiked cylinder cleaner, hopper-feeder, spiked cylinder cleaner, porcupine beater type cleaner, breaker picker and finisher picker.

2. The aerodynamic cleaner line consisted of a hopper-feeder, SRRL opener-cleaner-aerodynamic cleaner, breaker picker and finisher picker.

Fourteen-ounces-per-yard picker laps were carded at 12 pounds per hour to make 55 grain sliver. Nep counts were made at the end of four pounds and 21 pounds production.

The sliver was subjected to two stages of drawing and processed into 4.2 hank roving for double creel spinning into yarn. Yarn numbers were 22s (27 tex) for the short staple cotton and 28s (21 tex) for the medium staple cottons. Each test for each variety of cotton was replicated three times.

Results of the pilot scale tests are presented in tabular form. The additional cleaning obtained by adding the aerodynamic cleaner to the opener-cleaner is presented in *Table 1*. The data indicate an average of approximately one-third greater cleaning through the use of the air cleaner unit. The range of cleaning efficiencies reveals that cottons vary widely in their susceptibility to cleaning by air flow methods.

The physical properties of the three cottons processed through the two opening lines are shown in *Table 2*.

Table 3 shows the comparative cleaning efficiencies and waste analyses of the two opening lines. The aerodynamic line, in which the opener-cleaner-aerodynamic cleaner replaces the three conventional cleaning machines, averages slightly higher in cleaning efficiency than the control line. The

TABLE 3

Relative Cleaning Efficiency and Waste Analysis[1], Two Opening Lines

Processing line	Comparative cleaning efficiency[2] (%)	Fiber in waste (%)	Trash in lap (%)
Cotton—Paymaster			
Control line	100.0	18.5	3.64
Aerodynamic cleaner line	116.9	18.8	3.40
Cotton—Acala 4-42			
Control line	100.0	31.0	2.35
Aerodynamic cleaner line	110.8	23.4	2.16
Cotton—DPL 15			
Control line	100.0	12.0	3.26
Aerodynamic cleaner line	95.9	12.1	3.22
Average			
Control line	100.0	20.1	3.08
Aerodynamic cleaner line	107.3	18.1	2.93

[1] Determined by Shirley Analyzer
[2] Control Line = 100%

TABLE 4

Effect of Cleaning Lines on Neps and Card Waste

Processing line	Neps/gr after 21 lb	Card Waste (%)		
		Strips	Motes & Fly	Total
Cotton—Paymaster				
Control line	4.05	3.94	2.77	7.08
Aerodynamic cleaner line	4.43	3.94	2.55	6.92
Cotton—Acala 4-42				
Control line	9.02	3.83	2.04	6.36
Aerodynamic cleaner line	9.13	3.68	2.01	6.24
Cotton—Deltapine 15				
Control line	12.03	4.78	2.58	7.78
Aerodynamic cleaner line	12.62	4.83	2.49	7.76
Average				
Control line	8.37	4.18	2.46	7.15
Aerodynamic cleaner line	8.72	4.15	2.35	6.97

[2]The mention of trade names does not imply their endorsement by the Department of Agriculture over similar products not mentioned.

TABLE 5

Effect of Cleaning Lines on Fiber Properties

Treatment	Length Distribution[1] UQL in.	ML in.	CV %	Tensile Strength[2] 1000 psi
Cotton—Paymaster				
Raw stock	1.11	0.92	30	77.5
After control line	1.08	0.87	32	77.0
After aerodynamic cleaner line	1.08	0.88	32	76.6
Cotton—Acala 4-42				
Raw stock	1.17	0.95	32	87.7
After control line	1.18	0.96	32	87.8
After aerodynamic cleaner line	1.16	0.92	35	87.8
Cotton—Deltapine 15				
Raw stock	1.25	1.02	31	78.9
After control line	1.23	0.98	34	78.0
After aerodynamic cleaner line	1.26	1.00	31	80.0
Average				
Raw stock	1.18	0.96	31	81.3
After control line	1.16	0.94	33	80.9
After aerodynamic cleaner line	1.17	0.93	33	81.5

[1] Suter-Webb Fiber Array
[2] Pressley; "O" Gauge

TABLE 6

Effect of Cleaning Lines on Yarn Properties

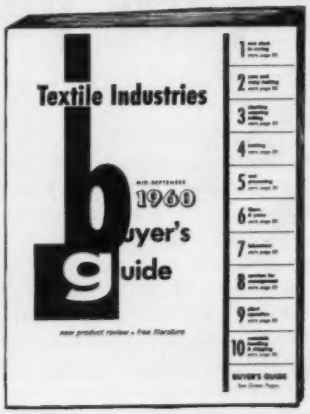
Treatment	Single Strand Yarn No. x Brk. Load (oz)	Elongation (%)	Skein Yarn No. x Brk. Load (lb)	Yarn Uniformity[1] @ 8 ypm CV (%)	@ 50 ypm CV (%)	Yarn grade
Cotton—Paymaster, 22/1 yarn (27 tex)						
Control line	264	6.87	2184	18.4	18.8	B
Aerodynamic cleaner line	266	7.08	2188	19.3	19.4	B
Acala 4-42, 28/1 yarn (21 tex)						
Control line	310	6.47	2521	19.7	19.6	C—
Aerodynamic cleaner line	307	6.48	2516	19.7	19.9	C—
Deltapine 15, 28/1 yarn (21 tex)						
Control line	295	7.02	2376	20.5	20.4	D+
Aerodynamic cleaner line	294	7.03	2343	19.7	20.3	D+
Average						
Control line	290	6.79	2360	19.5	19.6	C
Aerodynamic cleaner line	289	6.86	2349	19.6	19.4	C

[1] Determined with Uster yarn evenness tester

average per cent fiber in the waste was slightly lower for the aerodynamic line.

Table 4 shows the effect of the two lines on neps and card waste. There are no significant differences between the control and experimental line, indicating that the opener-cleaner-aerodynamic cleaner produces about the same number of neps and has the same influence on card waste as the three standard textile opening machines.

SAVE



The GREEN PAGES in this bonus (mid-September) issue contain the most complete and easiest-to-use buyer's guide available to textile mill management and operating executives. Use it throughout the year.

Neither of the cleaning lines has an adverse effect on fiber properties *(Table 5)*, and yarn quality is essentially the same *(Table 6)*.

The aerodynamic cleaner is covered by U.S. Patents 2,848,754 and 2,867,850, which are licensed by the U. S. Department of Agriculture on a royalty-free, nonexclusive basis. Licensed manufacturers of the cleaner may obtain complete engineering specifications without charge from the Southern Regional Research Laboratory, Post Office Box 19687, New Orleans 19, Louisiana.

Acknowledgements

The authors wish to thank H. W. Little for the statistical design of the tests and analysis of the data. They are also indebted to Dorothy Legendre and Marilyn Smith for making the fiber arrays; Ann Cooper, Shirley Reinhardt and Wilbur McSherry for determining yarn properties; and A. T. Callegan, R. Pertuit and associates for processing the cottons into yarns.

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KING-SIZE yarn packages

Staff prepared — Exclusive

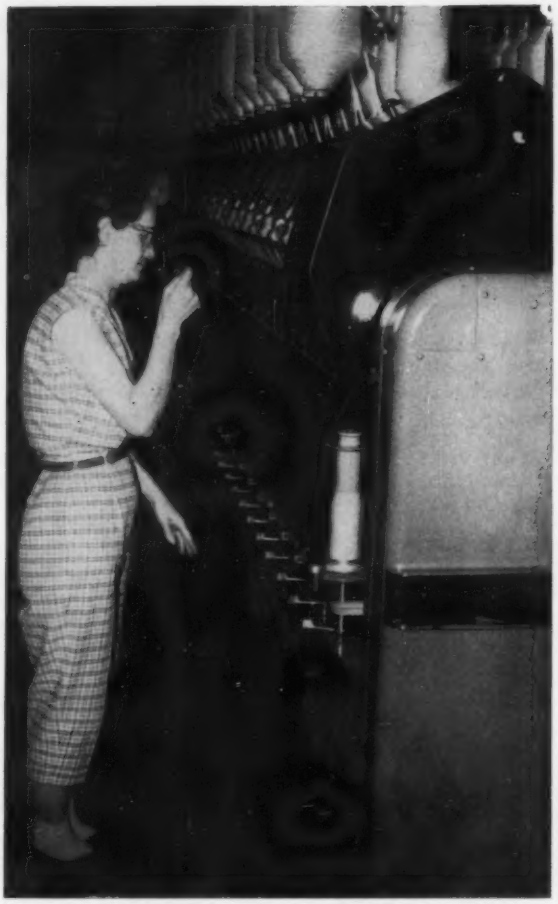
CONFRONTED with a carpet-yarn market that demanded heavier and heavier counts, Avondale Mills installed in its Stevenson, Ala., plant both spinning and twisting equipment big enough to handle the coarse numbers in large doses. With all ease, the new spinning frames (6½" rings) wrap 3.5 lb of soft-twist yarn on each package; the twisters (8" rings) combine two of these in making a single package; and the winding merely backs off a full bobbin onto a jumbo cone.

Translated into running time, this means that the spinning and twisting doff about every six hours when running 2s yarn.

The spinning is double-creeled with 0.20 hank roving on 12" x 6½" packages from SF3W drafting units (single apron) fitted to an SF2 fly frame chassis.

A twister stop motion detects broken ends and brings the appropriate spindle to a halt to keep drop plies out of the finished work. This pneumatic system uses a low volume of compressed air at 80 psi to brake the spindles.

Stevenson produces yarns containing Verel, rayon, and nylon, either pure mixes or blends, from 3" staple of both natural and dyed (in the big Eva Jane plant in Sylacauga) stock.

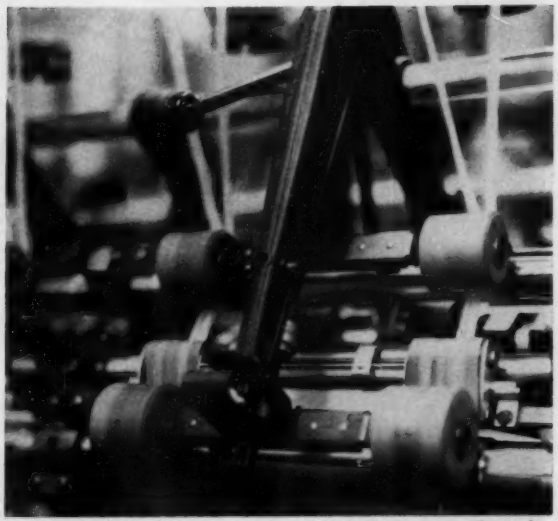


Finger brakes stop and hold spindles. Operative is Ruth Adams.

Operative Jessie Tidwell, as do the other spinners, wears pedal pushers because dresses have a way of getting caught in balloons.

Suction cleaning system separates scavenger waste from the frame sides, but has little to do with ends down staying "under 30."

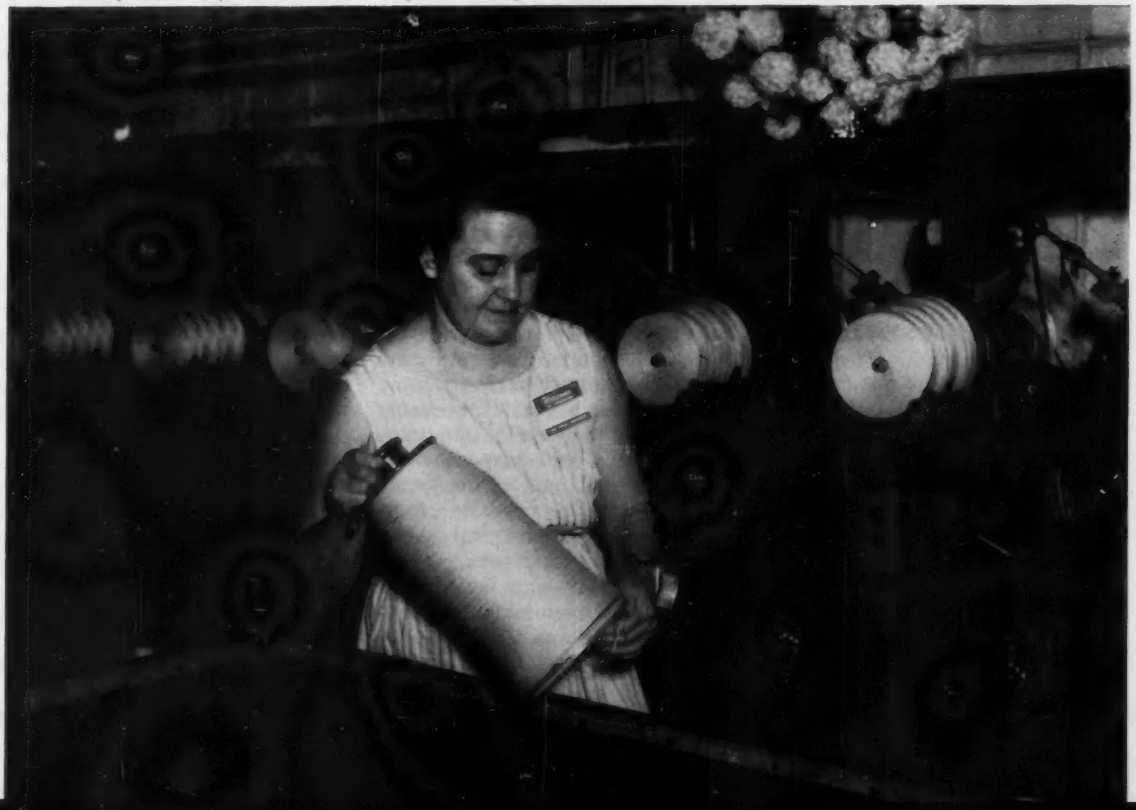
Air-stop spindles prevent drop plies. Operative is John Kirk.

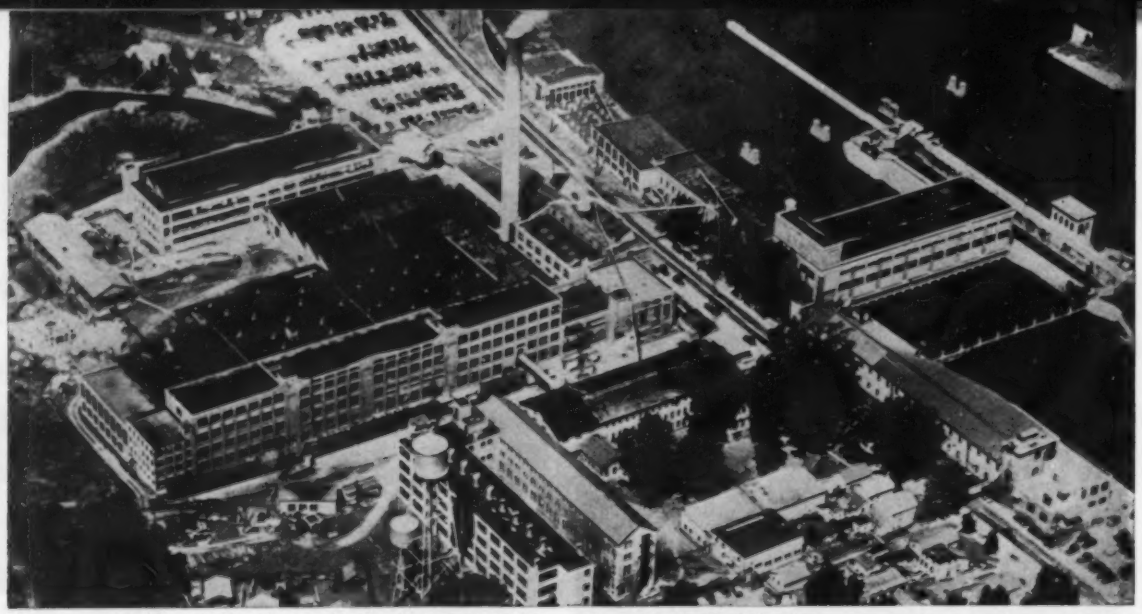


The modified F5 drafting unit permits spinning up to 9" staples.

Twister rings, with nylon travelers, "wick" oil from reservoirs.

Willie Foshee lifts one of the big twister packages to set it under a winder. Operatives experienced no difficulty in learning to handle these, instinctively grip such packages to keep them off their toes. From one such package comes a single jumbo cone.





This group of buildings is the Minetto, N. Y., plant of The Columbia Mills, where a fabrics and a metals division produces a variety of products, including folding doors, aluminum tension screens, industrial fabrics, and book cloths. Founded in 1896 as a manufacturer of window shade cloth, the company carries on a history in textile finishing. The book cloth division of The Columbia Mills is vast and modern; it occupies the major portion of the building in the center of the photograph above.

Book Cloth Finishing

Staff prepared Exclusive

SINCE its founding more than 60 years ago, as a manufacturer of window shade cloth, The Columbia Mills has survived significant eras of change. In the early decades of its existence, the company sought only to strengthen its competitive position in the window covering field. Its history at that time was one of gradual expansion, largely by merger with other shade cloth and shade roller manufacturers. At one point, the company became the largest in the field with plants in more than half a dozen states, and sales offices in principal cities across the nation.

But in the late twenties an important change occurred in the window covering industry—the development of the Venetian blind. Columbia Mills not only moved early into the manufacture of Venetian blinds, but also diversified into industrial fabrics by virtue of skills and experience acquired in shade cloth finishing.

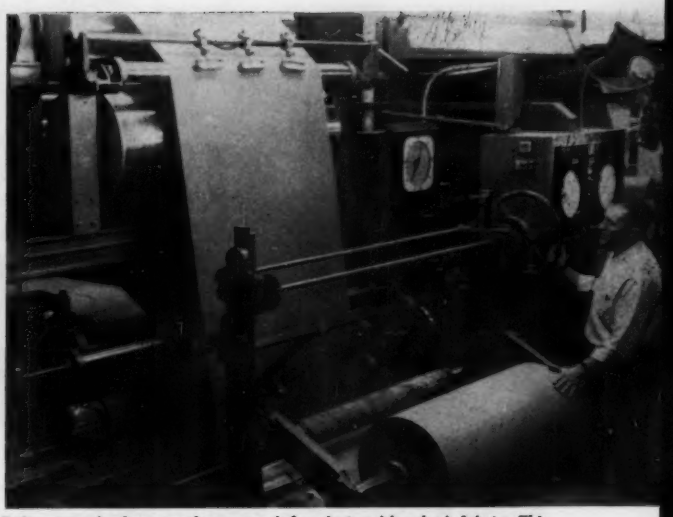
During the thirties an uneasy national economy did not encourage the development of new products, and the company strived only to retain its leading position in manufacturing and marketing the window shade. Its next move did not come about until 1941 when the company entered the window screen market with both flat and tension screens, again in keeping with changing trends, but with continuing emphasis on window treatment products.

At war's end a revitalized national economy brought new trends in consumer tastes for home products. As a result, the company sought to diversify into products utilizing management skills and existing manufacturing facilities. In 1952 this program of diversification gathered full steam as a new ownership took control. There followed large scale consolidations of manufacturing facilities. But perhaps the most significant changes of this period were the company's entry into the artificial leather field and its decision to concentrate on its growing book cloth finishing operations.

At this writing, a healthy state of diversification has been achieved, and there are now only three plants in The Columbia Mills group as contrasted with the sprawling organization of the shade cloth era. It is interesting to note, however, that even though the company has gone into the manufacture of metal products, it has still remained in the window covering and closely allied fields of textile finishing. Its history shows that it has only changed when trends in consumer tastes have indicated change.

In the Los Angeles plant, window screens and screen doors are among the products now being manufactured; while in Wilkes Barre, the line of woven wood products includes Lattishades, Lattiswood Draperies, and Lattisdoors. The Minetto, N. Y. plant largest by far in manufacturing

On this fully equipped coating machine in The Columbia Mills' research and development department, base fabrics are evaluated for book cloth and industrial fabric uses. This machine is often used as a production unit to fill small orders for book cloth.



Delivery end of tenter frame used for drying bleached fabric. This modern range, equipped with recording and controlling instruments, is capable of drying 4.00-yard fabrics at 300 yards per minute. However, actual speed is kept at 200 yards per minute.

the Columbia Mills Way

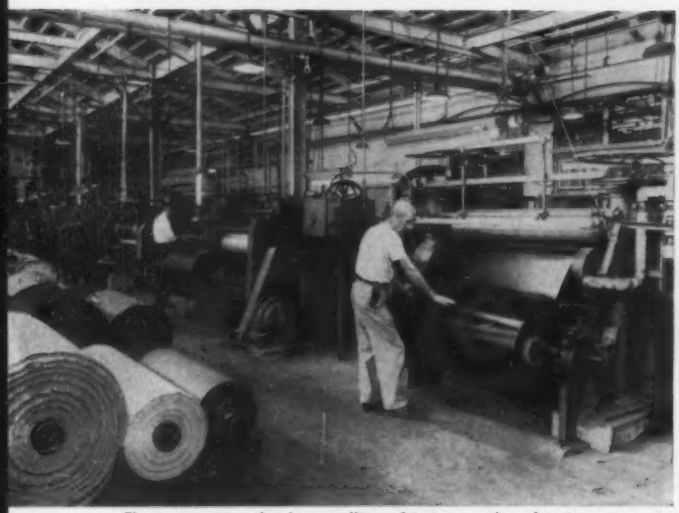
facilities, is comprised of two divisions: fabrics and metals. Though the two divisions are distinctly apart in manufacturing processes, they form a close alliance in the manufacture of some products. One outstanding example of this is the manufacture of the Columbia-Matic fabric folding door, which is used in business offices and other commercial buildings, as well as in residential construction and remodeling. The fabric component is processed and coated in the fabrics division, while the component metal parts are fabricated in the metals division. Then the component parts are assembled into the finished product.

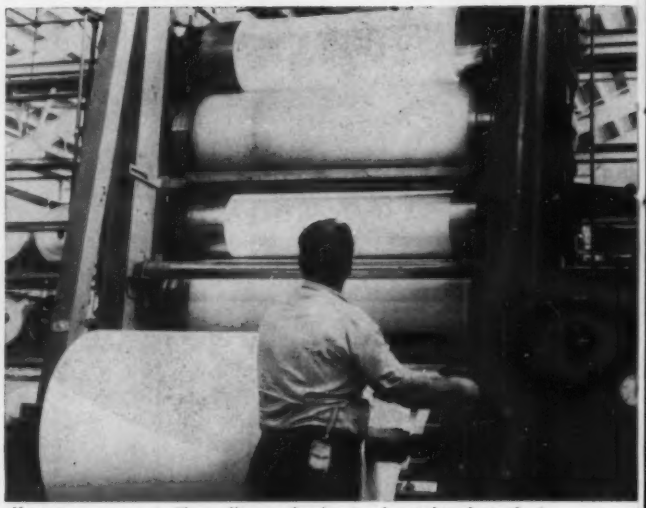
But an account of the Minetto, N. Y. plant, as this article will attempt to be, must center on the fabrics division, and more precisely on the art and science of book cloth finishing. For in recent years book cloth finishing has accounted for an increasing share of the company's sales volume. This is not altogether surprising, for by tradition a strong interest has been nurtured in textile finishing and in technological developments. Moreover, the company had acquired manufacturing know-how and facilities for coating operations, an important segment of the book cloth field.

Wood, Metal, Leather, and Cotton. The history of bookbinding antedates by many centuries the invention of mechanized printing. In the archives of the British Museum there is on view a set of Assyrian terra cotta tablets dated 1600 BC. The tablets are bound with single tablets, also of terra cotta, on which are inscribed the opening words of the text. Historians conjecture that these tablets were so bound to make what was perhaps the earliest form of book. From this same period, manuscripts have also appeared in Japan. The text is inscribed on leaves of date palms, cut to uniform size and held together between pieces of wood or carved ivory.

For many centuries the art of bookbinding remained in this rather primitive state. It was not until a higher culture came into being, during the Roman Empire, that other materials came into use. The books of this period were made up of leaves of ivory, metal, or thin wood, and wax-coated to enable writing with a stylus. These sheets were then ring bound between covers of animal skins or boards. The covers were lavishly ornamented, in many cases, with silver, gold, and precious stones. It was at this time, too, that leather came into prominence, particularly as a cover for writings that were intended to last. This era of bookbinding by hand reached new heights of achievement in ornamentation. For the most part, it was practiced by monks and artists, who spent their entire lives in forming and shaping the bindings of only a handful of books.

The art of hand binding as it had evolved during the Roman Empire flourished until the discovery of the printing press in





There are 35 calenders—rolling, friction, and embossing—to meet production goals and the wide diversity of finishes which the book cloth trade demands. At left above is a row of embossing calenders where coated fabrics are given patterened effects. If polyvinyl chloride or pyroxylin is used as the coating material, the embossed effect is permanent. The rolling calender in the right photo finds wide usage for many book cloth finishes, such as the vellum finish. The combination of heat, pressure, and time give the fabric a smooth hand of low gloss. For a natural finish, calendering obviously is not required.

1456. Then it became no longer feasible to bind by hand the increasing volume of printed pages. Thus, the combination of leather over board came into prominence, to be replaced later by leather over cardboard. This latter form of binding continued into the 18th and 19th centuries, being quite common during our own Colonial period.

As the volume of printing increased in the second half of the 19th century, bookbinders began to seek less expensive covering materials. Among some historians it is believed that filled cotton cloth came into use less than 100 years ago. Of the fibers then in existence, cotton proved to be most practical and economical, lending itself by further coloring and finishing into a functional and decorative material.

In the early part of this century, the processes of starch filling and impregnating cotton advanced into production stages. Thus it was possible to meet the increasing demand for book cloth. From that time to the present, advances have continued in the technologies of bleaching, dyeing, and finishing to keep cotton in a reigning position as a bookbinding material—not merely because of its resilience and durability but also for its wide decorative appeal.

Quality Control: It Begins With the Grey Fabric. The art and science of book cloth finishing, as carried out at The Columbia Mills, begins with the selection of grey cloth from constructions which fall into four fabric categories: print cloths, osnaburgs, sheetings, and enameling ducks. Selection depends largely on end usage and type of finish desired. Such factors as strength, appearance, and price are among the most important considerations. From the accompanying glossary of book cloth finishing, it can be seen that some variety in finishing exists to make fabric selection and inspection essentially important. In some finishes, as in coating, fabric appearance plays a minor part since the weave is obscured; but in others, as in the linen finish, it must add to the ultimate appeal of the book cover design.

To insure continuing fabric quality, The Columbia Mills some years ago set up a quality control program, which begins with spinning and weaving. Under the program, a close liaison is maintained with the supplying grey mills. Each year a Columbia Mills executive visits the mills to keep them informed of fabric requirements for specific finishes and end uses. This practice has served to reduce defects that are particularly undesirable for certain finishes.

Though this phase of the program is considered successful, a quality control program is nevertheless in effect at The Columbia Mills plant. From each fabric shipment a bale is selected and closely examined, bearing in mind however the finish that it will receive. Thus, heavy yarn slubs may not be objectionable in a linen finish, but they could not be tolerated by book designers in a vellum finish. In addition to this inspection, the fabrics are given prescribed laboratory tests to insure that they meet specifications of the book cloth trades. The quality control program, of course, extends to the finishing operations that follow.

Finishing Routines. In The Columbia Mills' lay-out of bleaching, dyeing, and finishing processes, it is interesting to note that they are concentrated on one floor, though the building is of multistoried construction. Where feasible, operations have been combined for continuous processing. In the lay-out of the preparatory operations, for example, the individual steps preceding the kier boil have been combined into a continuous process. The fabric is first saturated in an enzyme, squeezed to a controlled pick-up, and reeled in rope form into a J-box, where it lies for the required amount of time.

Then it is passed through a tensionless washer, to rinse away solubilized starches, and finally plaited mechanically into a kier.

Columbia has found, after a study of modern processes, that the kier boil offers definite advantages which are apparent in the ultimate quality of the finish. It is almost needless to mention, however, in view of management's emphasis on modernization, that no loyalty exists to a particular process, and that there would be no hesitancy to abandon the kier boil for a more economical process, if it produced comparable results.

After boiling, the fabric passes through a conventional hypochlorite bleaching routine, which includes souring (to remove traces of alkali), chemicking, antichlorine, and rinsing. Then it is dried to width on a modern, high-speed tenter frame.

During preparation and bleaching some significant changes have taken place in the grey fabric. Its impurities have been removed to make it soft, highly absorbent, and of uniform whiteness. From this point on, it begins to acquire properties that are essential to a particular book cloth use. In general, finishing can be broken down into three major operations: dyeing, application of the finishing material, and calendering. These three operations constitute the science of book cloth finishing; but there is a great deal of art in establishing the proper sequence of steps for each type of finish—and more importantly, in carrying out each step.

It may be of some interest to list the sequence of operations for a starch-filled vellum finish. This finish is characterized by a solid colored appearance and smooth surface of some gloss. The operations are as follows:

1. Dyeing (direct dyes are widely used)
2. Drying
3. Padding or filling
4. Dampening
5. Calendering
6. Embossing (if called for)
7. Final inspection and put-up

This sequence is varied for the linen and natural finishes, since entirely different effects are desired. For the linen finish, dyeing is eliminated but colorant is incorporated in the finishing formulation. A two-tone colored effect is obtained by scraping excess finishing material with a doctor blade. For the natural finish, the base fabric is dyed and a colorant is incorporated in the finishing formulation, as in the case of the vellum finish. But the finishing material is applied to the back side of the fabric by a back-filling operation to produce a slightly textured and clothy fabric face. Calendering is obviously not required.

As the principal finishing ingredient, starch has several shortcomings. Among these are lack of permanence and lack of resistance to

Continued on page 175

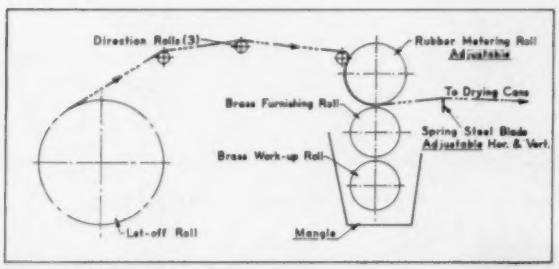


Fig. 1. Padder Starch Filling. There are numerous methods by which finishing materials are applied to the fabric. The choice depends upon desired end result—or, more precisely, on where the finishing material is to be deposited. The above arrangement of rollers and doctor blade represents a basic method of impregnating fabrics.

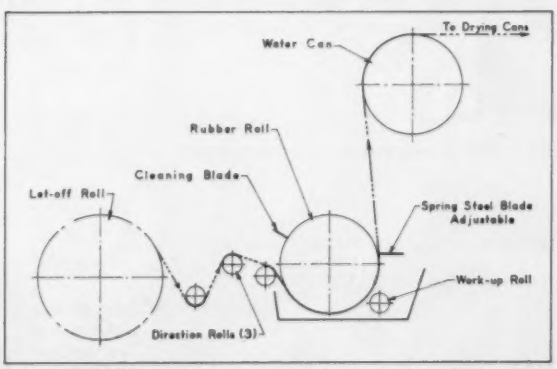


Fig. 2. Backfilling for Starch. In this method of application, the filling material is deposited on the back side of the fabric, producing a slightly textured and clothy hand on the fabric's face. The natural finish is obtained in this way. If durability or waterproof properties are desired, pyroxylin or polyvinyl chloride can be substituted for starch.

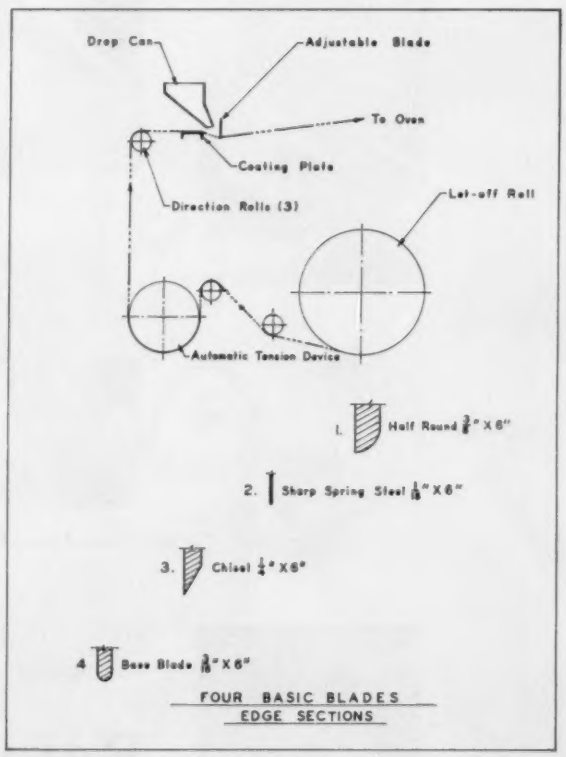


Fig. 3. Coating Machine. This simple arrangement of drop can, coating plate, and adjustable doctor blade deposits finishing materials on fabric uniformly, without penetration. Coated fabrics are invariably embossed to simulate leather or create patterned effects.

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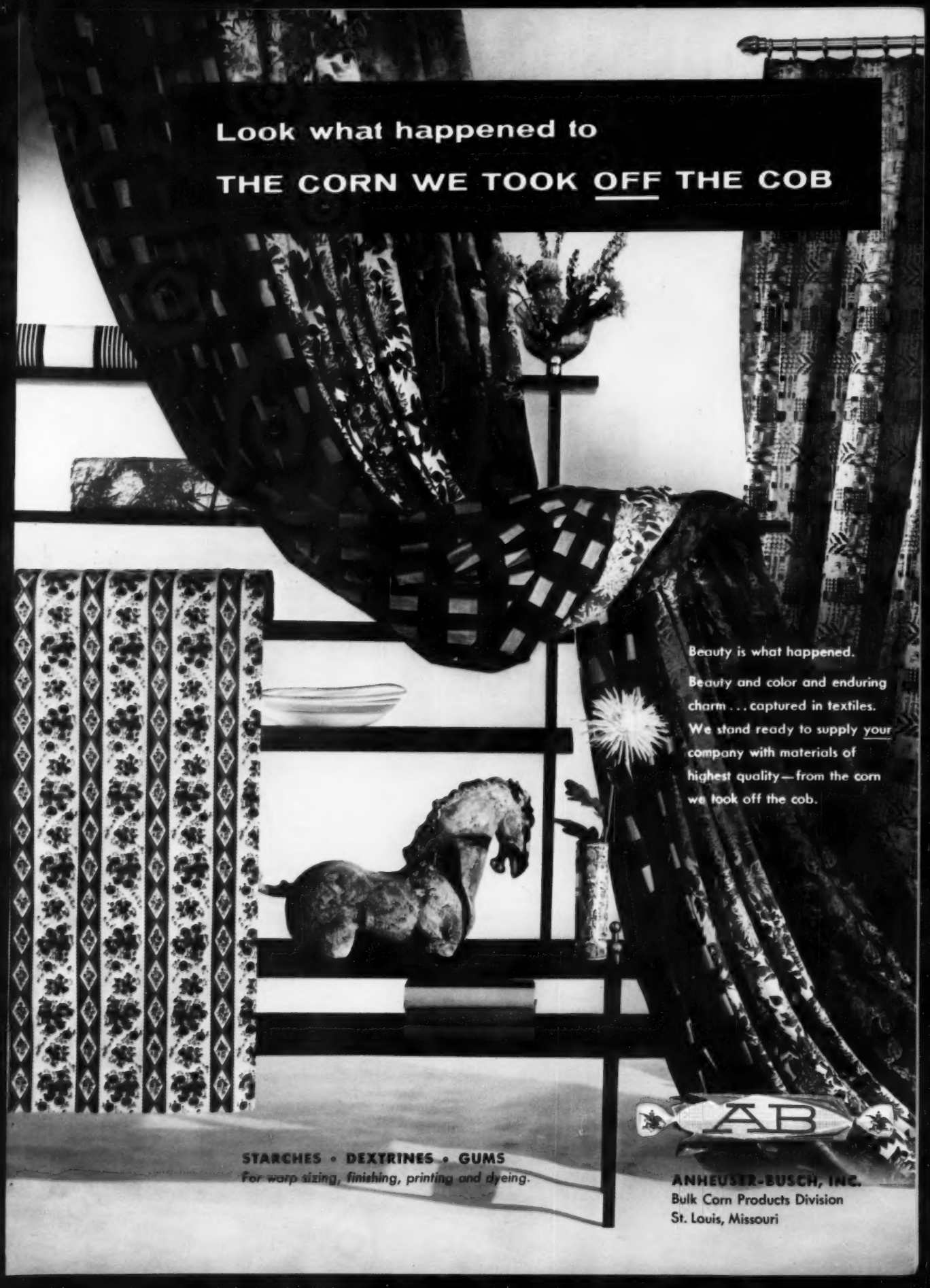
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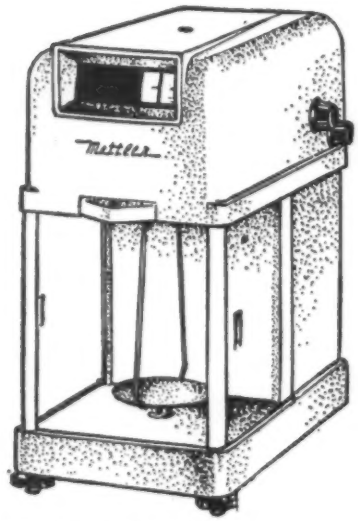

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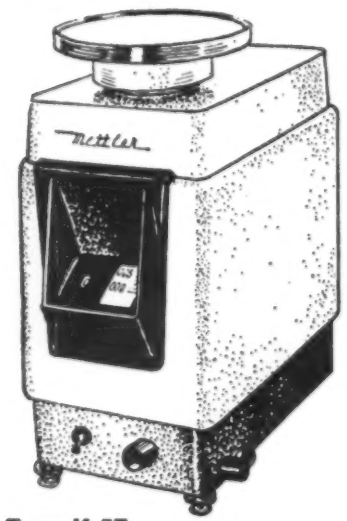

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Glossary of Book Cloth Finishing

Trade Book. A book published in a form designed for the general public. In this category can be included novels and other works of a fictional or nonfictional nature, which generally have a passing interest. Hence, the book covers are selected accordingly.

Textbook. A book that contains a presentation of the principles of a subject and is used as a basis of instruction, e. g., Webster's Collegiate Dictionary. Generally, the cover is selected for prolonged hard usage.

Base Fabric. A properly selected cotton fabric which passes through a sequence of finishing operations to acquire additional properties and decorative appeal for use as book cloth. Fabric is selected from four types: print cloth, sheeting, osnaburg, and enameling duck.

Linen Finish. A finish applied to an undyed fabric to present a two-tone colored effect. The finishing formulation, containing colorant, is deposited largely in the interstices of the fabric by the action of a doctor blade, which leaves the thread crosses clean.

Vellum Finish. A finish applied to a dyed fabric to present a solid colored effect. The finishing formulation is colored the same shade as dyed ground. The fabric's surface is smooth and of some gloss.

Natural Finish. A finish with a colored effect similar to a vellum, but the face of the fabric is slightly rough and textured because the filling material has been applied to the back side of the fabric.

Offset Book Cloth. A recent trend in book designing which offers multicolored printed effects of high decorative appeal. The base cotton fabric is finished to meet specifications for trade book or textbook, but must lend itself to the offset printing process as well.

Starch Filling. A finishing operation in which a formulation based on starch is applied to the fabric by one of several methods, depending on desired end results in appearance, texture, and hand. In one method, the finishing material is spread on fabric and the excess uniformly wiped off by a doctor blade, which is held against a roller turning in the finishing mixture; the interstices of the fabric are filled and obscured by the starch mixture.

Pyroxylin Filling. A finishing operation in which a formulation based on pyroxylin, a cellulose nitrate dispersion, is applied to the fabric by one of several methods, depending on the desired end result. If penetration (impregnation) is desired, the doctor blade is set against the fabric to force the finish into it. If a coated effect is desired, the finish is applied to the fabric face and spread by doctor blade to cover the threads. Pyroxylin-impregnated cloths are used in large quantities for textbooks and for expensive books where durability and waterproof properties are required.

Vinyl Filling. A finishing operation in which a formulation based on polyvinyl chloride is applied to the fabric by impregnation or coating. The finish offers durability and waterproof properties together with high abrasion resistance. It is regarded as the finishing material of the future.

Types of Calendering:

Embossing. Passage of fabric between an engraved steel roll and a soft fiber roll under great pressure and heat to produce a patterned effect. The pattern is permanent if a pyroxylin or polyvinyl finish has been applied.

Friction. Passage of fabric between two rolls, each revolving at a different speed, to produce a sheen or glazed effect. The top roll revolves at a higher speed to create a friction on the fabric's surface.

Rolling. Passage of fabric through multiple rolls of various composition, some of which are heated, to produce a smooth effect, of low gloss, on the fabric.

moisture. Its principal advantage is one of price. But it cannot compare in all other respects with pyroxylin (cellulose nitrate) and polyvinyl chloride, which are durable and waterproof.

These two products can be applied similarly to starch to obtain linen, vellum, and natural finishes. Of the two, pyroxylin is used more widely, for the time being at least, but polyvinyl chloride is considered the material of the future because it offers higher abrasion resistance and greater durability. Either product can be formulated for impregnation and coating.

It would be of no value to list individual finishing formulations, which must take into account the type of machine being used, the fabric construction, and desired end result. It is perhaps more meaningful to list the five basic ingredients which govern all formulations regardless of application or the type of film-former used. The ingredients are as follows:

1. Film-former: starch, pyroxylin, or polyvinyl chloride
2. Pigments or colorants
3. Filling and weighting materials
4. Plasticizers, added for pliability and flexibility of finish
5. Solvent—water, in the case of a starch finish; organic solvents, in the case of pyroxylin or polyvinyl chloride

End usage largely determines selection of film-former. If permanency is required, as in textbooks, impregnation with pyroxylin (or with polyvinyl chloride) is indicated. Pyroxylin-coated materials, on the other hand, are used largely on sets of books, on religious works, and on catalogues, rather than on trade or textbooks.

At this point, it may be worthwhile to differentiate between impregnation and coating, though the difference may be obvious, by briefly describing each process, the equipment that it requires, and the properties that it imparts. To produce a pyroxylin vellum finish, the dyed base fabric is passed through a mangle, consisting of a series of rollers and heavy doctor blades, which force the pyroxylin finish into the fabric. The fabric is then dried to width on a tenter frame. (The mangle and tenter are arranged for continuous operation.) Then the fabric may be given one or more coatings of pyroxylin, which is spread on the fabric by a doctor blade.

If coating only is desired, the pyroxylin is applied without penetration of fabric. Coating produces a more flexible fabric and finish as distinguished from impregna-

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tion, which imparts some stiffness. Moreover, coated fabrics are of greater weight and they are invariably embossed. The individual threads of a coated fabric are completely obscured.

A pyroxylin-impregnated vellum finish requires calendering, of course, to produce a smooth finish of some gloss. But embossing is rarely carried out.

Calendering: Important Key to Good Finishing. It is apparent that much practical know-how is required to achieve the individual characteristics that each finish calls for. There are many keys to successful finishing, and among these calendering ranks high. In appreciation of its importance The Columbia Mills has continually modernized and expanded its calendering operations, which include embossing, rolling, and friction. There are now thirty-five pieces of equipment to meet production requirements for a large variety of finishes.

The calendering operations are located within easy trucking distance of the succeeding operation, which is final inspection before shipment.

Research and Development: Key to the Future. The future of book cloth finishing, or more exactly, the continuing reign of cotton as a base fabric, seems assured. This fiber is inexpensive, it is in abundant supply, and it possesses the essential properties of resilience and durability. Besides, in fabric form it lends itself to high-speed, economical processing. Indeed, the technology of book cloth finishing is now in a sound and highly developed state. That is not to say, however, that cotton as a base fabric is without competition. The introduction and growing acceptance of "paper-back" editions has encroached upon book cloth production, but the volume of cloth finishing is still enormous and is expected to rise with population growth and the resultant demand for more books of all kinds.

Nevertheless, The Columbia Mills has taken steps to maintain its leading position as a book cloth finisher. It has organized a research and development department, where new finishing materials and new base fabrics are evaluated on a pilot plant scale. Nor is management overlooking the growing importance of aesthetics and color in book cover design. Accordingly, it has set up a color styling department, under the direction of an art director, who works closely with book designers and publishers to extend Columbia's range of shades. Not the least important reason for setting up this department was an appreciation of the wider use of modern color technology in book production, which attests to the public's consciousness of color.

It is perhaps difficult to foretell in which area of the book cloth field new advances will appear, whether in finishing technologies, in new base materials and finishes, or in book designing. It is not likely that a new trend would be viewed with alarm by The Columbia Mills' management, who have given strong emphasis to research and preparedness. There is a strong possibility that new trends might well be forthcoming from its own laboratories.

Phi Psi offers services as clearing house for all-textile PR effort

■ ALTHOUGH enrollment in textile colleges has dropped significantly in the past five years, the colleges themselves expect enrollments to increase in the next five years, according to a survey just completed by Phi Psi Fraternity.

In announcing the survey results at the fraternity's 57th Annual Convention held in New York City, First Vice-President George L. Logan, advertising manager of Veeder-Root, Inc., said, "In spite of the individual efforts of many well-intentioned organizations, there still remains a big void: lack of a coordinated public relations program for the textile industry. We in Phi Psi . . . should be prepared to act as a focal point for such an activity, in the best interests of our industry."

Survey results were summarized as follows:

Q. Why has there been such a marked drop in enrollment of textile students?

A. Lack of a good publicity program by the industry, lower starting salaries, and longer hours.

Q. Would a change in curriculum be advisable in order to better educate a student so that upon graduation he would be more in demand by textile concerns?

A. No. Demand for graduates is high, and curricula have been changed in keeping with industry demands for less technical knowledge and more emphasis on basic science and the humanities. The main problem is to attract more freshmen.

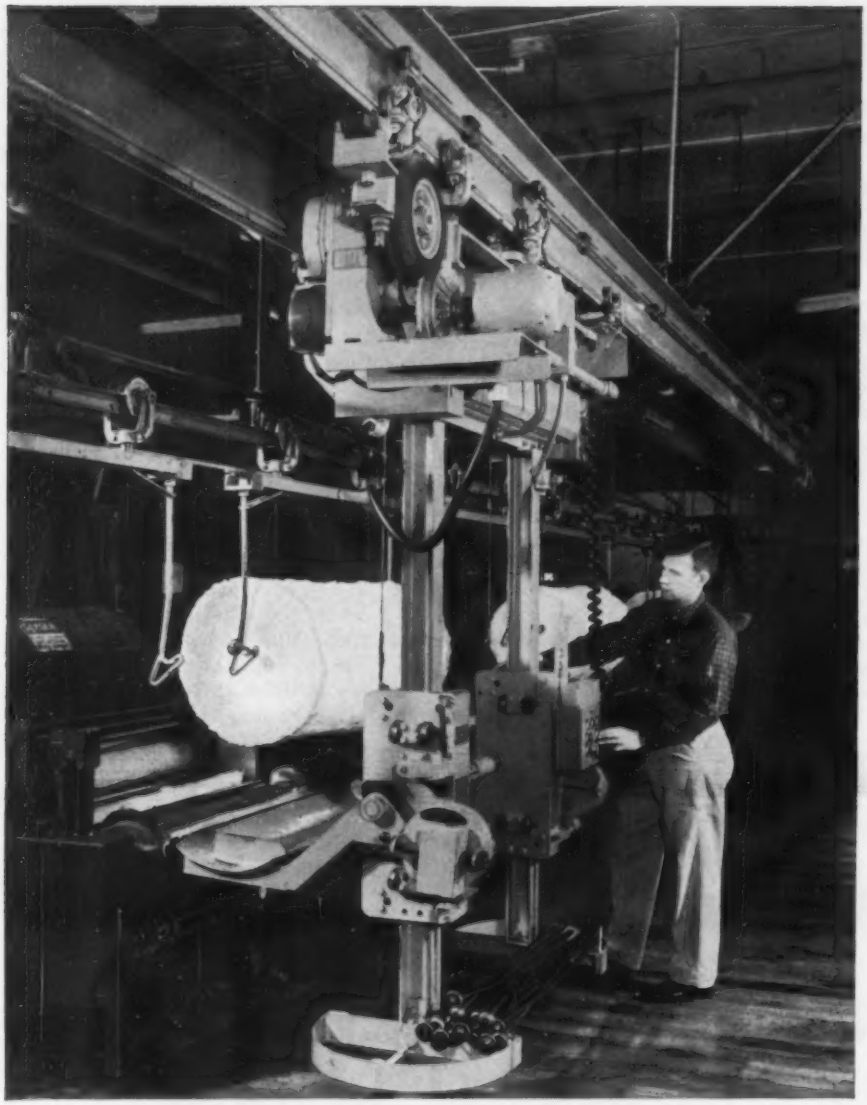
Q. How can new interest be developed to stimulate greater enrollment in textile colleges?

A. Better publicity and public relations aimed at the general public and, more specifically, at high-school students and their guidance directors.

Q. How has enrollment fared over the past five years, and what about the next five years?

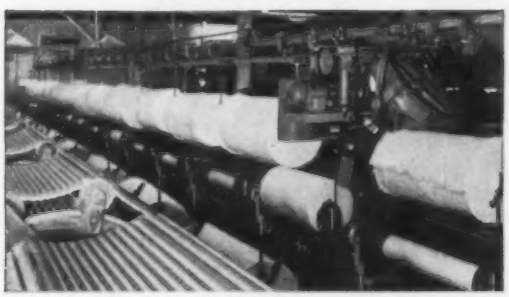
A. Down 26% from 1954 to 1959. Next five years: generally optimistic about a reversal of the trend.

Noting that the trend will not be reversed unless some positive action is taken, Mr. Logan said: "It's up to someone to take leadership position to draw together the efforts of various schools, associations, and individual companies. An unbiased organization such as Phi Psi, dedicated to the improvement of the textile industry, appears to me to be an ideal choice for the job."



1 Tender serves 12 (or more) pickers

See American Monorail equipment at Booth 1437 ATMA Show, Atlantic City.



Monorail Train when fully loaded travels automatically throughout the card room. Card tender can manually stop train at any position to creel the cards. High velocity ceiling fan traveling with train keeps ceiling clean.

Lifts..Weighs..Handles Laps
cuts cost of lap handling

This Lap Balance and Lift Car not only checks lap weight but also lifts the lap from the picker to an American Monorail lap handling system. The operator is never required to lift the lap, so consequently the weight of the lap may be increased as desired.

This machine automatically positions itself to receive the lap when it is rolled a few inches out from the picker. After checking lap weight and automatically placing the lap in the carrier, the machine automatically positions itself in front of the next picker to repeat the cycle.

AMERICAN MONORAIL © A.M.Co. 1960

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OVERHEAD HANDLING EQUIPMENT

MEMBER OF AMERICAN TEXTILE MACHINERY ASSOCIATION

Scheduled cloth doffing

Step by step procedure for setting cloth doffing schedules where cut length is not fixed

by F. G. Ernest—Exclusive

IN SOME instances a choice must be made between the most efficient utilization of machines and that of the available manpower. Obviously, in the case of a very expensive piece of machinery, it is more advantageous to maintain the machine efficiency at a high rate even at the expense of higher labor costs.

On the other hand, if the equipment involved is not very expensive and the available floor space is not at a premium, labor cost may well be the determining factor. In such a case it appears best to employ labor at its highest possible efficiency and to let machine capacity remain idle part of the time.

The ideal solution to this type of problem obviously lies at that point where machines and manpower are both utilized in the most efficient manner. However, this point is not always easy to determine. One of the most useful methods of establishing such a level of maximum utilization on a continuous basis is scheduling.

This technique has long been recognized by many mills for its special adaptability in the case of spinning room doffing. It has a wide range of additional applications in a textile mill, and this is particularly true in the weave room where many operations are repetitive but where the cyclical nature of the various occurences makes random servicing sometimes impractical.

The following description, using a hypothetical model weave room, will illustrate how manpower resources can be utilized most efficiently by the use of long term scheduling of activities without sacrificing any part of the machine efficiency.

Indeed, it will become apparent that the same schedule which will improve the utilization of the available personnel will at the same time make a contribution to increased machine efficiency. The particular task to which long term scheduling will be applied in our hypothetical situation is cloth doffing.

For purposes of illustration we shall use as a model a hypothetical weaving mill with 715 looms. The width and speed capacities of these looms will be indicated in *Table 1.* Current sales dictate the manufacture of twelve different styles, and *Table 2* will show both the construction of each style and weekly requirements.

To satisfy these requirements as nearly as possible, management assigns an appropriate number of looms to each style. The resulting schedule and the expected production at an average efficiency of 90 per cent are outlined in *Table 3.*

After the loom assignment has been worked out, the mill is balanced and the preparatory departments have started to deliver the proper amount of warp and filling yarn, the standards department goes to work assigning workloads to the operating personnel (or line supervision makes these assignments on the basis of data developed and furnished by the standards department). As a rule, weavers are given a certain number of looms to be serviced at random. Battery hands are assigned a stand of looms based on the standard number of quills plugged per hour, and the servicing is usually performed on a cyclical basis.

In the case of the hypothetical weave room the standards department has set the ideal workload for the cloth doffers at 285 cuts per eight hour day. The maximum workload, after adjusting for an appropriate fatigue allowance, is set at 300 cuts doffed per day.

The standards department has computed the optimum size of loom cuts in pounds. Of course, it is desirable to extend the interval between doffs as long as possible without damaging the cloth due to excessive circumference of rolls.

The optimum weight per cut varies with the width

WONDERING HOW TO CUT PAINT MAINTENANCE COSTS?

If you want to cut maintenance costs, Herb Norton's a good man to talk to. A member of Du Pont's recently formed Technical Service Group, Herb's a specialist whose job it is to solve maintenance painting problems of every description. In his words:

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"Another reason, equally important, is the expert guidance you get from Du Pont. You see, we go right into your plant or installation and make a thorough study of your individual maintenance problem. Then—drawing on our own experience, backed up by Du Pont technical competence—we formulate a painting program that meets your needs exactly. Service like this helps you achieve lasting protection against every conceivable corrosive condition, *at lowest cost per square foot per year.*"

If you have a maintenance problem you'd like to discuss with an expert, there's a man like Herb Norton in *your* area. To meet him, just call your nearest Du Pont district sales office. Or write: E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Dept. TI-67, Wilmington 98, Delaware.

* * *

Herbert L. Norton came to Du Pont's Finishes Division in 1939, having studied chemical engineering at the Georgia School of Technology. As he added experience, increased responsibilities kept pace. Currently, Herb is Southeastern District Manager, Industrial Maintenance Sales. His background includes problem-solving in such areas of industry as textile, paper, petroleum, food, marine and public utilities.

DU PONT PAINTS

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

of the cloth. This is due to two factors.

Naturally, a given yardage of wide cloth weighs more than the same yardage of narrow cloth, assuming identical weight per square yard. In addition to this, it is necessary to consider that it is easier to handle a given roll of wide—"tall"—cloth than it is to handle a "short" roll of narrow cloth of the same weight. Taking both of these factors into consideration the standards department has worked out the standard weight per cut for the various widths as indicated in *Table 4*.

Using the standard loom cut weight given in *Table 4*, and with the knowledge of the production per loom-week in pounds, the frequency of the duration of the doffing cycle can now be established for each style.

By dividing the standard weight per cut of each style by the number of pounds produced per loom per day, we obtain the theoretical duration of the doffing cycle. Fractional days can then be rounded up or down to obtain an actual feasible duration.

It should be remembered that it is usually more desirable to adjust fractional days downward. While this will result in "short doffing" it is usually more desirable than "long doffing," which may result in damaged cloth.

Also, it may actually result in low efficiency because if the cuts become too large the looms may have to be stopped to wait for doffing. In addition we must consider that when cuts become substantially heavier than the established standard, this will have an adverse effect on the workload set up for the doffers.

Obviously, the time element per cut will change as will the appropriate fatigue allowance. The information leading to the duration of the cloth doffing cycle is given in *Table 5*.

Using the values for "standard days between doffs" it is now possible to project the cloth doffers work assignment for several weeks in advance. In doing so, we keep in mind that the standard daily workload has been set up in the range of 285 to 300 cuts, and we attempt to stay as close to that range as possible.

Assume that for several days

TABLE 1

Weave Room Machinery Capacity

No. of Looms	Width	Speed (ppm)
55	34"	175
320	40"	170
170	45"	160
170	52"	150
715 Total		

TABLE 4

Standard Loom Cut Weights

Width of cloth	weight (lb)
30" - 32"	80
33" - 36"	90
37" - 39"	100
40" - 41"	110
42" - 43"	120
44" - 46"	130
47" - 49"	140
50" - 52"	150

TABLE 2

Current Sales

Style	Width	Yd/lb	Construction	Weekly Requirement (yd)
A	30"	6.00	44x40	27,000
B	34"	5.00	48x44	15,000
C	38"	4.30	56x56	43,000
D	40"	4.00	80x80	25,000
E	40"	3.50	56x62	42,000
F	40"	2.85	48x48	58,000
G	42"	3.60	58x54	25,000
H	45"	3.25	52x54	13,000
I	45"	1.90	40x30	95,000
J	48"	4.50	48x52	28,000
K	48"	4.00	56x52	28,000
L	51"	3.70	60x48	33,000
Total				432,000

TABLE 3

Current Loom Assignment & Weekly Production

Style	No. of looms assigned	Loom speed (ppm)	Yards per 120 loom hr at 90%	Total yards per week
A	35	175	787	27,545
B	20	175	716	14,320
C	80	170	546	43,680
D	65	170	382	24,830
E	85	170	494	41,990
F	90	170	638	57,420
G	45	160	533	23,985
H	25	160	533	13,325
I	100	160	960	96,000
J	55	150	519	28,545
K	55	150	519	28,545
L	60	150	562	33,720
Total				433,905 yds.

TABLE 5

Development of Length of Doffing Cycle

Style	Lb per loom per 120 hrs (90%)	Lb per loom per day (24 hr)	Standard lb per cut	Theoretical days between doffs	Standard days between doffs
A	131	26	80	3.1	3
B	143	29	90	3.1	3
C	127	25	100	4.0	4
D	96	19	110	5.8	6
E	141	28	110	3.9	4
F	224	45	110	2.4	2
G	148	30	120	4.0	4
H	164	33	130	3.9	4
I	505	101	130	1.3	1
J	115	23	140	6.1	6
K	130	26	140	5.4	5
L	152	30	150	5.0	5

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Nopco 1525	A 100% active nonionic ethylene oxide condensate with excellent acid stability
Nopco 2272-R	Low foaming sulfated ester. Performs as wetting and rewetting agent, penetrant, and dye leveler

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Nopcolube® 55	Lubricant added to polyacrylic acid size bath for Nylon to eliminate topwaxing

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Nopcostat 56-C	Antistatic oil recommended for use on all woolens. Applied in range of 3-5% owf
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TABLE 6

Cloth Doffers Workload Projected for Five Weeks—Unadjusted

Style	No. of days between doffs	No. of looms assigned	First Week					Second Week					Third Week					Fourth Week					Fifth Week				
			M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F
A	3	35	—	—	35	—	—	35	—	—	35	—	—	35	—	—	35	—	—	35	—	—	35	—	—	35	—
B	3	20	20	—	—	20	—	—	20	—	—	20	—	—	20	—	—	20	—	—	20	—	—	20	—	—	20
C	4	80	—	80	—	—	—	80	—	—	—	80	—	—	—	80	—	—	—	80	—	—	—	80	—	—	—
D	6	65	65	—	—	—	—	—	65	—	—	—	—	—	65	—	—	—	—	—	65	—	—	—	—	—	65
E	4	85	—	85	—	—	—	85	—	—	—	85	—	—	—	85	—	—	—	85	—	—	—	85	—	—	—
F	2	90	90	—	90	—	90	—	90	—	90	—	90	—	90	—	90	—	90	—	90	—	90	—	90	—	90
G	4	45	—	—	—	45	—	—	—	45	—	—	—	45	—	—	—	45	—	—	—	45	—	—	—	45	—
H	4	25	—	25	—	—	—	25	—	—	—	25	—	—	—	25	—	—	—	25	—	—	—	25	—	—	—
I	1	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
J	6	55	—	—	—	55	—	—	—	—	—	55	—	—	—	—	—	55	—	—	—	—	—	55	—	—	—
K	5	55	—	—	—	55	—	—	—	—	55	—	—	—	—	55	—	—	—	—	55	—	—	—	—	55	—
L	5	60	—	—	60	—	—	—	—	60	—	—	—	—	60	—	—	—	—	60	—	—	—	—	60	—	—
Total		715	275	290	285	275	190	325	285	205	280	365	190	200	295	365	225	220	190	385	330	145	225	365	350	235	275

TABLE 7

Cloth Doffers Workload Projected for Five Weeks—Adjusted

Style	No. of days between doffs	No. of looms assigned	First Week					Second Week					Third Week					Fourth Week					Fifth Week				
			M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F
A	3	35	—	—	35	—	—	35	—	—	35	—	—	35	—	35	—	—	35	—	—	35	—	—	35	—	—
B	3	20	20	—	—	20	—	20	—	—	20	—	—	20	—	20	—	20	—	—	20	—	20	—	—	20	—
C	4	80	—	80	—	—	—	80	—	—	—	80	—	—	—	80	—	—	—	80	—	80	—	—	—	80	—
D	6	65	65	—	—	—	—	—	65	—	—	—	—	65	—	—	—	—	—	65	—	—	65	—	—	—	—
E	4	85	—	85	—	—	85	—	—	85	—	—	85	—	—	—	85	—	—	—	85	—	—	85	—	—	85
F	2	90	90	—	90	—	90	—	90	—	90	—	90	—	90	—	90	—	90	—	90	—	90	—	90	—	90
G	4	45	—	—	—	45	—	—	—	45	—	—	—	45	—	—	—	45	—	—	—	45	—	—	—	45	—
H	4	25	—	25	—	—	—	25	—	—	—	25	—	—	25	—	—	25	—	—	—	25	—	—	—	25	—
I	1	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
J	6	55	—	—	—	55	—	—	—	—	—	55	—	—	—	—	—	55	—	—	—	—	—	55	—	—	—
K	5	55	—	—	—	55	—	—	—	—	55	—	—	—	—	55	—	—	—	55	—	—	—	—	55	—	—
L	5	60	—	—	60	—	—	—	—	60	—	—	—	—	60	—	—	60	—	—	—	—	—	60	—	—	—
Total		715	275	290	285	275	275	260	255	290	300	260	275	265	275	290	275	245	285	300	295	285	275	300	280	270	275

we are successful in this. We note, however, that beginning with the fifth day the doffing cycle of the individual styles overlap to cause wide fluctuations in the daily workload.

As we project the planned schedule over a five-week period, we find that the daily requirement ranges from a low of 145 cuts (50% of the normal workload) to a high of 385 cuts (135% of the standard). A detailed analysis of the data in *Table 6* reveals that the daily workload is within reasonably normal limits on only eight days out of the twenty-five, or 32%. On ten days, or 40% of the time, the workload is insufficient to keep the men busy. And 28% of the time, or on seven different occasions, the required work load is too high.

If we attempt to rearrange the initial doffing date of each construction during the first week, we shall find that no matter how many times we try to shift the various styles around, after a number of days the same pattern of excessively light and heavy workloads will emerge.

We now have several alternatives. We can arrange to send the cloth doffing crew home early on days with sub-standard workloads and have them work overtime on days when the total doffing requirement exceeds 300 looms. Or we may wish to find them other part time duties on days with light workloads and perhaps employ an additional crew to supplement the work force on days which call for above-standard cloth doffing requirements.

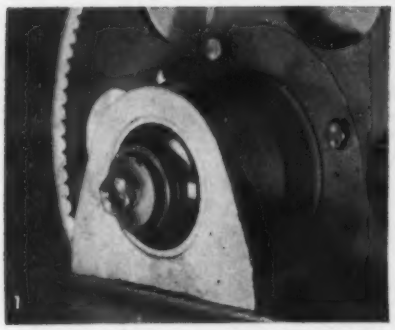
Such arrangement may or may not be feasible in any individual mill, depending on the availability of personnel and supervisions' ability to find other duties effectively. However, whichever course is taken, all decisions will be based on the basic information as set forth in *Table 6*.

If it were not for the data presented in *Table 6*—and of course all the preliminary facts leading up to it—no planning could take place at all. Supervision would not even know when to expect days with heavy and/or light workloads.

Supervisors would find themselves in difficulty keeping their cloth doffers busy on certain days, whereas at other times the men would not be able to doff all the looms. Damaged cloth, loom downtime, and overtime would result without any one being in a position to predict just when or how often they might reoccur.

Thus, the overall plan at least puts us into a position to anticipate variations in the workload and to plan appropriate action.

Continued on page 187



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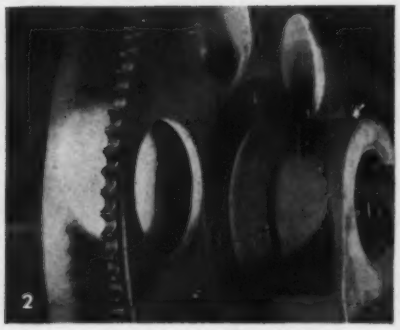
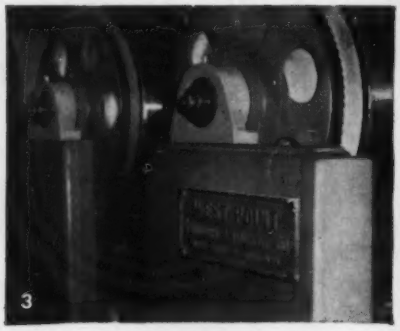
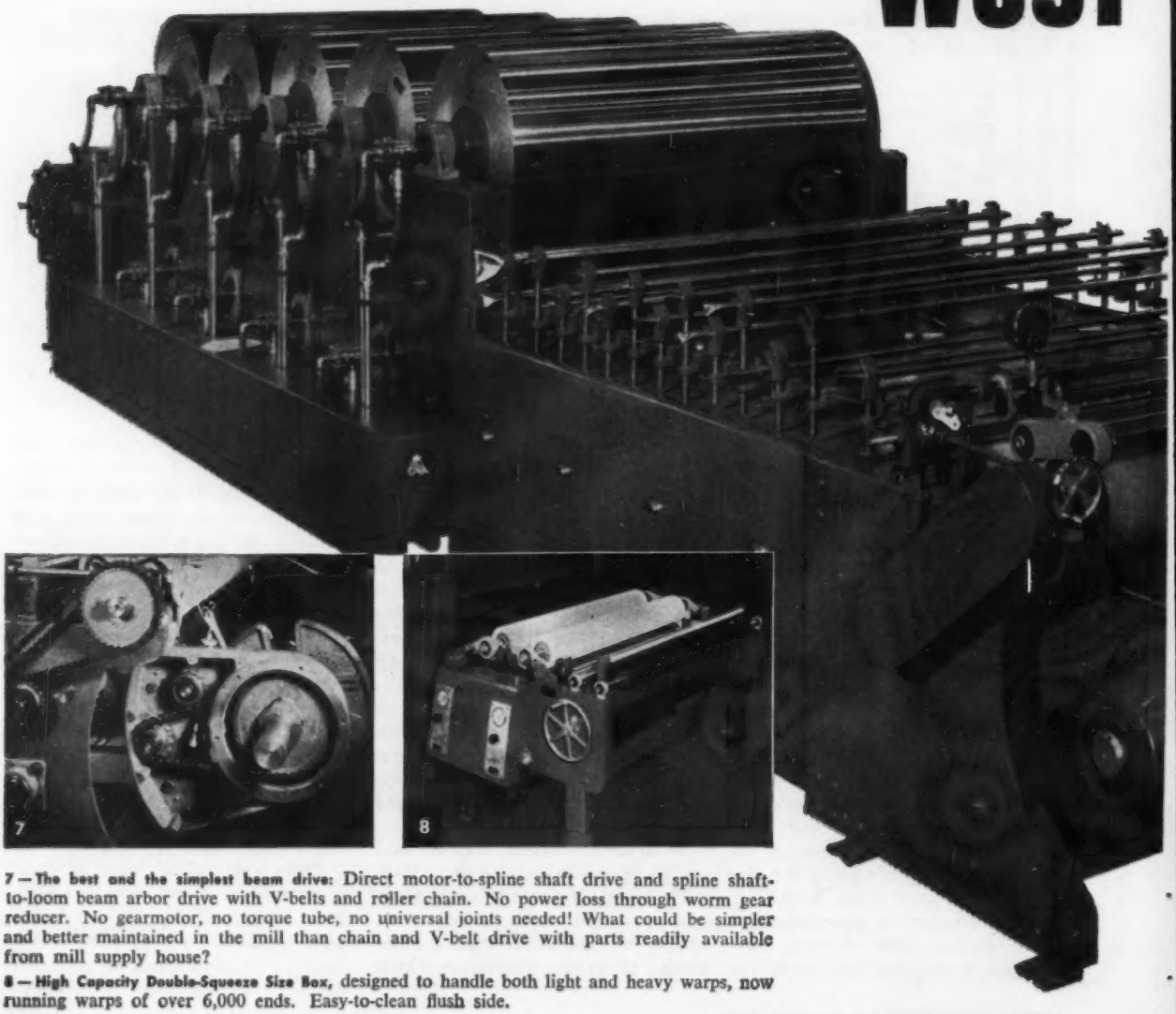


Largest sprockets: 25-inch 105-teeth sprockets mean more accurate control of cylinder surface speed and yarn tension, more efficient transmission of power, longer life.



Heaviest frame built: 7" deep at the heaviest point, 4" deep at the lightest. New patent-pending "wide-open" design gives superior access to warp and cylinders.

Eight good reasons why **West**



7 — The best and the simplest beam drive: Direct motor-to-spline shaft drive and spline shaft-to-loom beam arbor drive with V-belts and roller chain. No power loss through worm gear reducer. No gearmotor, no torque tube, no universal joints needed! What could be simpler and better maintained in the mill than chain and V-belt drive with parts readily available from mill supply house?

8 — High Capacity Double-Squeeze Size Box, designed to handle both light and heavy warps, now running warps of over 6,000 ends. Easy-to-clean flush side.

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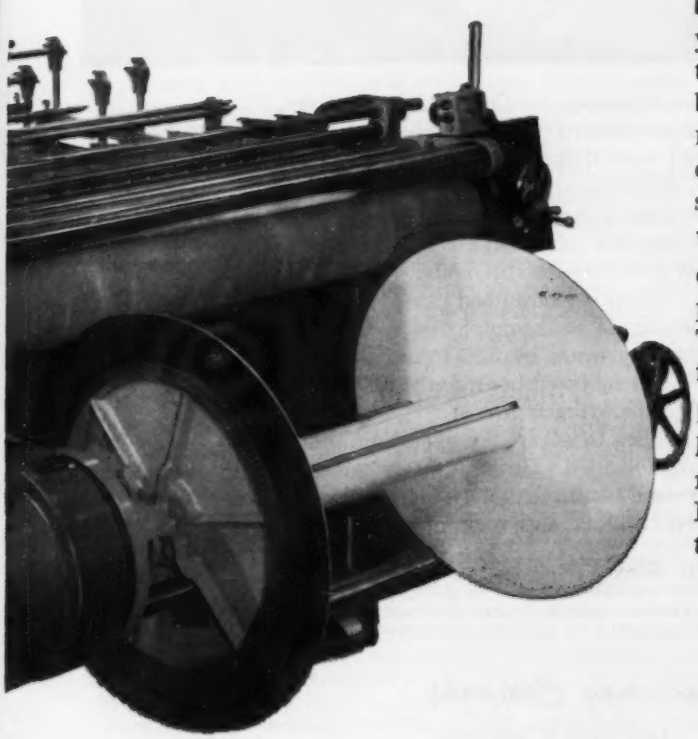

IN ACTUAL SALES during the last four years West Point Foundry sold more slashers than all other U. S. A. manufacturers combined by an overwhelming margin. This is BUYING PREFERENCE expressed in hard-earned textile dollars which makes other manufacturers' claims sound empty.

WEST POINT'S PACESETTER is *not* the least expensive slasher built, but an overwhelming preference by buyers means it is the best value! This is only because of the exceptional quality features of the PACESETTER slasher.

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WEST POINT
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WEST POINT, GEORGIA

Ludell Heat Reclaimer Engineered to Save the Equivalent of 46,800 Lb. Boiler at New Carlisle Finishing Plant!

The management team and consulting engineers for Cone Mills investigated the fuel savings and operational improvements possible through effective re-use of heat from waste water. They were determined that the new finishing plant at Carlisle, South Carolina, should incorporate this modern, money-saving technique. As a result, the Ludell System of heat recovery was specified, designed, and built into the new plant. This system has the capacity to deliver the equivalent of a 46,800 lbs./hr. boiler.

At the Carlisle Plant, the Ludell System is guaranteed capable of raising the temperature of 1260 gallons per minute of incoming fresh water from 40° to 112° F, cutting the cost of heating water by 50%. And the Ludell System helps when it's needed most . . . in cold weather months when boilers operate to capacity, and raw water temperature is lowest.

The temperature rise guarantee applies to every day operation . . . not just for an initial reading when first installed. Because of its automatic self-cleaning feature, the Ludell System further guarantees non-clog performance, thereby eliminating costly cleaning and maintenance.

FREE on-the-spot survey! Planning to build or remodel? Want to convert waste into profit? Consider the savings Ludell can bring you in lower fuel bills and reduced boiler load when your need is greatest. A *free survey* is yours — at your plant — by Ludell engineers. Write today — there's no obligation.

Ludell *Manufacturing Company*

5200 West State Street • Milwaukee 8, Wisconsin

"Only Ludell guarantees continuous day in day out rated heat reclaiming performance. Check on Ludell for savings in your operation."

(from p. 183)
Beyond that, it enables us—because of our long range knowledge of the problems involved—to manipulate the facts and figures in such a manner as to produce a more evenly balanced workload.

In fact as we shall see, we are now in a position to eliminate the fluctuation in such a manner that daily workload requirements will never exceed the maximum and on rare occasions will fall only slightly below the minimum.

One method of achieving this might be to break up the blocks of looms represented by each style and to doff only a portion of each construction each day, staggering the smaller groups of looms in such a manner as to produce an evenly flowing workload. Again, the data in *Table 6* will be our point of departure.

By breaking up the groups of looms assigned to each style into two or more blocks, we achieve greater flexibility and by occasionally short doffing a subgroup of looms we shall be able to avoid the extreme peaks and valleys in the daily doffing requirement.

In the case of our model weave room we have selected an alternate procedure. This is set forth in *Table 7*.

Here we have not subdivided any groupings of looms—we have maintained the block doffing of entire styles. However, by short doffing some styles at certain times, we are able to achieve the desired level of work-load distribution. It should be remembered that it is usually better to short doff than to long doff.

It will be noted that the daily totals in *Table 7* never exceed the maximum workload of 300 cuts, and that only twice (on Tuesday of the second week and on Monday of the fourth week) does the workload fall more than 10% below standard.

Thus, we find that long range scheduling has enabled us not only to anticipate problems caused by variations in the workload before they arise, but has actually made it possible to solve them. In fact the very solution to the problems pointed up by the schedules lie in additional scheduling.

We have now been able to achieve our original objectives. By the use of planning and by utilizing the information yielded by long term scheduling, we are making optimum use of our personnel and contributing to increased machine efficiency.

Singles yarn worsted fabrics wrinkle less in high humidity, study shows

■ WRINKLES — an age-old textile problem — has been fundamentally attacked by modern scientific methods, and the attack appears to be bearing fruit.

Speaking on May 27 at the Second Quinquennial Wool Textile Research Conference at Harrogate, Leeds, England, Norman J. Abbott, senior research associate of Fabric Research Laboratories, Inc., Dedham, Mass., cautioned, however, that "a considerable amount of experience in the application of theoretical concepts is necessary before one can be certain that the theory is a reliable and useful one."

Most of Mr. Abbott's paper, as the title, "Theoretical Considerations of Bending and Creasing in a Fabric," implies, was in the realm of fundamental theory, but some practical implications were suggested. The paper was co-authored by Abbott, M. J. Coplan, and M. M. Platt, all of FRL, and the research was sponsored by The Wool Bureau, Inc., of New York.

Utilizing, in Mr. Abbott's words, "an idealized approach of classical mechanics," an analysis of fabric flexure was presented. Attempts were made to relate fabric behavior to fiber properties with particular attention to the variables introduced by fiber and yarn interactions in the construction geometry of a fabric. Two factors were extensively analyzed: (1) the degree of fiber association or clustering which exists within the yarn, and (2) the effect of yarn intersections within the fabric in producing rigidity variations along the length of the yarn. Equations were presented which showed the influence of these factors on the flexural rigidity of the fabric and on the average maximum strain to which fibers are subjected in any bent configuration.

The factors which influence yarn rigidity, as discussed by Mr. Abbott, are (1) fiber deformation and displacement, (2) bending and torsional strains and ability to recover from these, (3) energy dissipation resulting from friction, (4) the fiber's elastic properties, and (5) the tendency of fibers in a yarn to cluster and increase flexural rigidity.

All of these continue to be important once the yarn has been woven into cloth, but additional ones come into being. These are related to the interaction of one set of yarns on the other, Mr. Abbott said, and include rigidity variations in the yarn, crimp angles, and possible changes in degree of fiber clustering.

"It is much too early," Mr. Abbott pointed out, "to apply the equations resulting from this research to typical across-the-board situations." He offered one illustration, however, showing how the new theory can at least partially explain an existing situation in light-weight tropical worsted fabrics which are commonly made of two-ply yarns. From a wrinkle-resistance point of view, at high humidities the two-ply yarn fabrics do not seem to compare well with similar worsted fabrics made of singles yarns, according to Mr. Abbott. In the latter, a lower degree of stiffness develops in high humidities and there is a lower degree of fiber strain (resulting in improved recovery from wrinkling).

One of his equations indicates that the difference may be explained by increased fiber clustering which occurs in the two-ply yarns at high humidity or from a decrease in those lengths of yarn segments which are not held rigid in the two-ply fabric structure. "We can not yet provide an absolute answer but we think we have shed some light on the situation," Mr. Abbott noted.

The original goal of the research, as defined by The Wool Bureau and FRL, was "to provide a theoretical analysis of bending and creasing in a textile fabric in the hope that the concepts which arise out of the analysis will prove to be useful in providing an improved understanding of fabric behavior and a sounder basis from which to design fabrics of optimum bending and creasing characteristics." Mr. Abbott said that the research is still in progress and "it appears that the original objective was very likely a realistic one."

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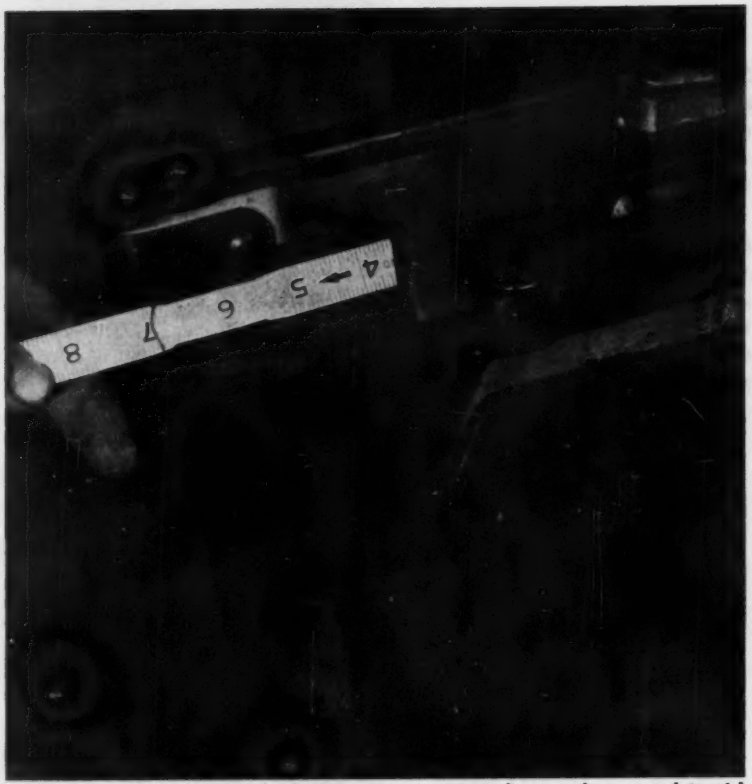
GAUGES in Draper loom maintenance

Why loom gauges are needed in the mill and how to use them

Staff prepared Exclusive



Stroke, or sweep, should never be forced or set to a given figure without regard to pick motion condition. When it begins to decrease, examine the motion for source of failure.

Article 8—Finding and keeping adequate picking power*

HOW MUCH POWER? The loom builder makes the picking motion adjustable to allow it to be changed to accommodate differing power requirements and to allow for wear. Looms that are sold to produce sheetings are erected under the recommended settings for sheetings. Management thus must see that power is corrected as the weave is changed by obtaining a battery of settings pertinent to the new condition.

Otherwise, there likely will be periods in which the looms are operated with much more power than they need, a condition similar to driving an expensive truck in low gear regardless of the load or road.

The time-tested way of determining power settings is to set aside a loom (a group of them gives more accuracy) for study purposes and tinker with the settings until the best performance is obtained. This system, however, is not recommended to amateurs, for in the studies the stroboscopic sight and the tuned ears of the veteran fixer must be used along with the gauges. There is much artistry left in loom fixing.

Another approach that takes less time and gives perfectly accurate results, as long as looms are maintained so as to permit uniformity in their settings, involves the stroboscope. This, too, is a system not recommended to amateurs, for it requires that a fixer know how to correct such variables as shed interference, lay misalignment, box action, check strap action, etc., enter.

Beginning at the frog steel, draw a series of white lines ¼" apart for 1½" toward the back of the frog. Then place the shuttle into the left-hand box just far enough to lift the dagger clear of the steel. Now, draw a white line across the shuttle and back box extension. This is the point of earliest protection; the line across the shuttle must reach the one across the extension to prevent protector action.

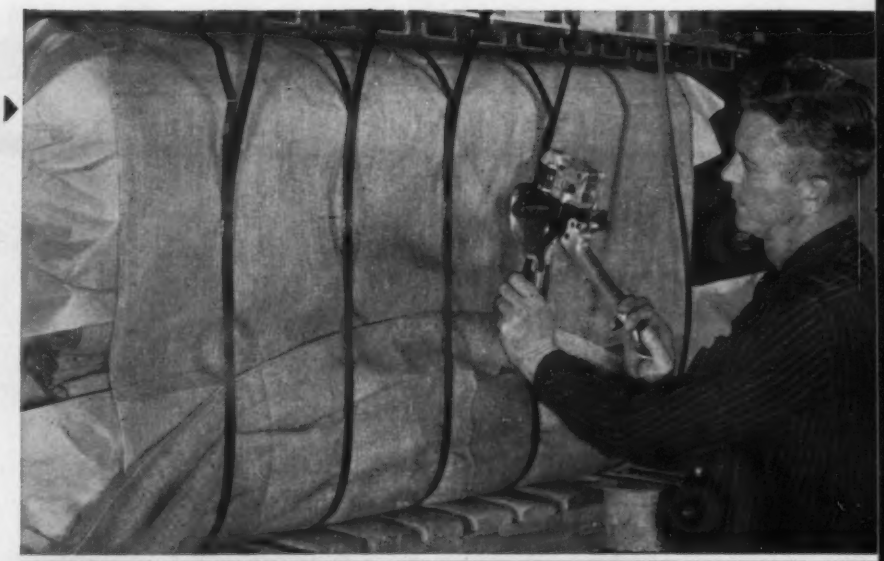
Attach the contactor to the cam shaft, start the loom, turn on the stroboscope and synchronize it with loom action until the shuttle mark matches the extension mark. It is now possible to read the markings on the frog.

The dagger should be seen hovering somewhere between the 1-inch and the 1¼-inch mark. If the 1½-inch mark is visible, there is too much power; if the 1-inch mark is lost under the dagger, there is too little power. Adjust the lug height or the pick arm length accordingly.

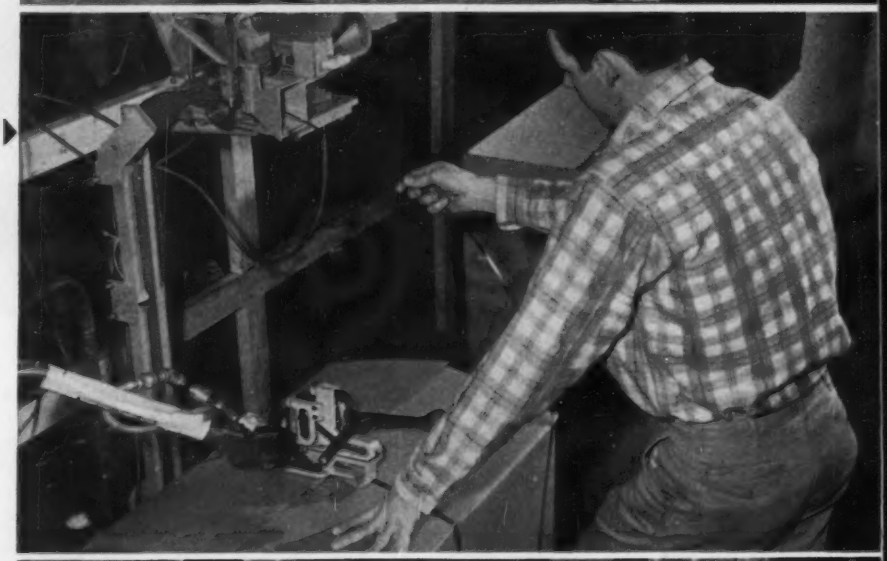
If the mark on the shuttle per-

*The first article in this series was published in the January, 1960, issue. Parts 2, 3, 4, 5, 6, and 7 appeared in the February, March, May, June, July and September issues, respectively. After the complete series has been published, the articles will be reprinted in book form.

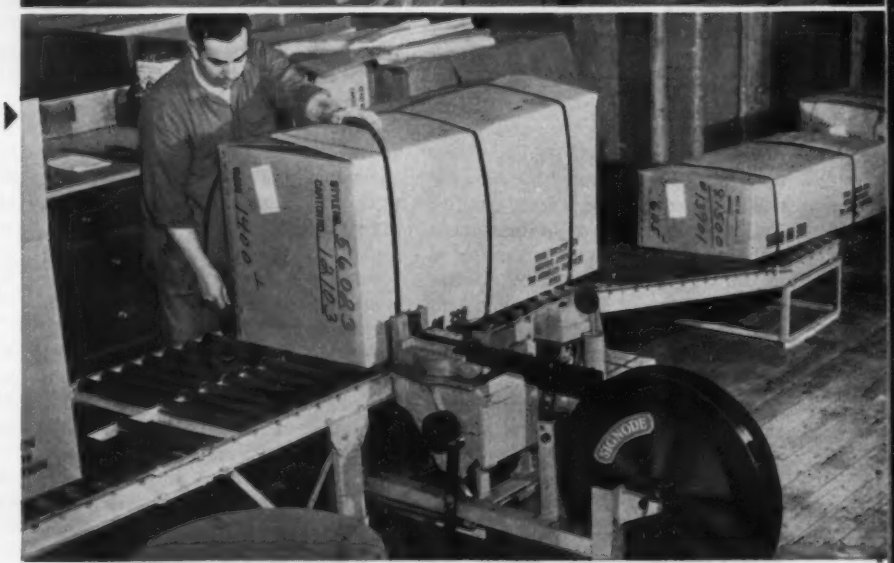
Signode Model SFC manually-operated seal feed strapping tool tensions, seals and scores strap at the seal for easy break-off with fast, smooth, one-arm movement. Weighs only 6½ lbs., and its almost perfect balance makes it easy to handle with one hand. In the illustration, the operator is using the SFC in the Signode strap-saver baling method, which reduces strap use by as much as 17%.

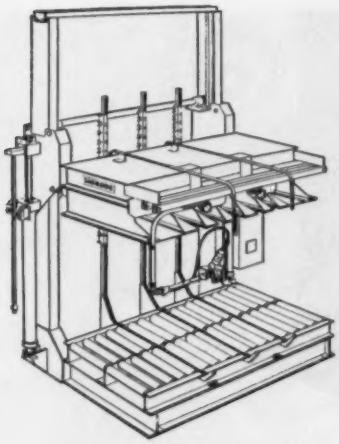


Signode Power Strap Feeder is a motorized, foot-pedal operated device for putting strap around big packages. It eliminates the need for a helper, enables one man to strap as many as 500 large cartons per day. Can be used with the Model AP strapping tool shown, or any of Signode's hand, air, or electric powered combination strapping tools.



Signode Power Strapping Machine automatically feeds, tensions, seals and severs the strap in seconds. One operator readily applies strapping more than fast enough for the highest production rates. May be used on cartons, bundles, boxes or bales of varying sizes, giving uniform pre-set tension at the touch of a foot pedal. Completely automatic strapping stations also available.





New Signode Compression Strapping Machine designed specifically for the textile industry makes tight, compact packages or bales that cost less to handle, store, ship and receive. It has a compression capacity of 2,000 pounds and is equipped to feed strap automatically around package or bale. Tensioning and sealing is done with any Signode hand-operated air or electric power combination strapping tool or machine. Resulting denser bales save as much as 7% of valuable space in storage and shipment.

Save Time, Money, Manpower ...the Signode Way

Signode can probably help you find ways to make substantial savings in time, money and manpower. Here are some of the reasons why we think so:

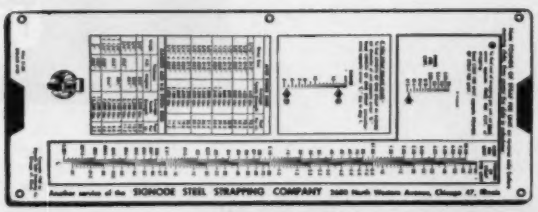
Our line of strapping equipment permits selection of the tool or machine that is right for the job. It includes hand tools, power tools, feeders, presses, and completely automatic machines. Our continuing program of product improvement is backed by 45 years of specialized experience.

The Signode man near you is experienced in the application of this equipment to textile strapping and packaging operations. He also can offer, if needed, the services of Signode's field engineering staff and extensive testing laboratories at no cost to you.

If you have not reviewed your strapping operations quite recently, it will almost certainly pay you to do so, with Signode. Potential savings go beyond the strapping operation....include savings for you in handling, storing, and shipping, plus savings for your customer.

The coupon below is for your convenience.

FREE! NEW Signode Steel Strapping Calculator helps you buy steel strapping at least cost according to your needs, and shows new strength figures for Signode steel strapping.



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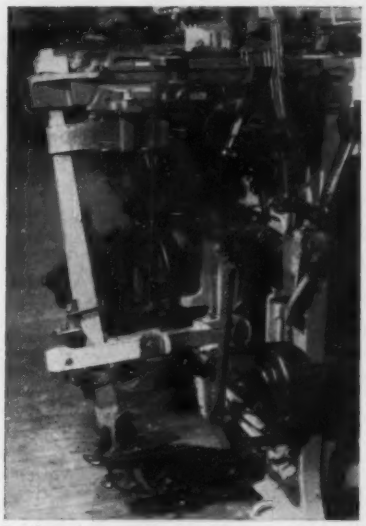


Too-low lugs are not mere symptoms of an ailing loom. They defeat the purpose of the parallel motion and shorten its life by applying force upward. Giving pick ball proper overhang corrected it in this case.

sists in moving about the mark on the box extension, there is something interfering with the shuttle flight. These influences, warp interference, bouncing shuttle, bad alignment, etc., must be removed to allow the marks to match before the settings can be used on other looms.

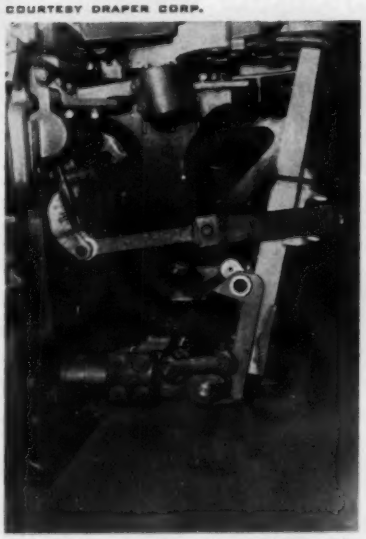
This direct approach to reading loom power accommodates such influences—shedding and beat-up, to name a couple—as normally appear in weaving any one style. But it must be remembered that the loom has to be properly set up (and all play must be out of the protector rod) from picking and boxing standpoints before the results will be reproducible.

The Gauges

The Lay Gauge and Front Center. The forward limit of lay travel is fixed by setting the lay gauge on the lay end so that one end of it rests against the back box plate and by adjusting the crank arms until the other end of the gauge contacts the breast beam at the front loom horn. This setting does not change much in normal running if spring crank arms are in use, but it is likely to wander considerably in a relatively short time when wooden crank arms are involved.

Thus to set a schedule for its use would be rather meaningless, unless one could equate type of fabric, crank arm, etc., to known movement. But it is a small gauge that takes up little space and should be used whenever crank arm repairs are made. And since pick motion timing is off in proportion to front-center error, it should be used whenever the pick motion is being reconditioned. The part it plays in setting the transfer motion is another story.

COURTESY DRAPER CORP.



Picking power needs continue to be met by ever-changing loom designs. Note the refinements: (1) graduated pick arm to expedite setting; (2) metal lug with grease fitting at the pick arm; (3) front pick shaft box embedded behind flange to prevent creep; (4) parallel motion utilizing linkages to exercise positive control; (5) twin heel bolts holding picker stick in deep groove to defy twisting; (6) adjustable pick shaft bumper in easy reach; (7) check strap assembly offering feather-touch control; (8) bumpers for the picker stick and parallel motion.

The Pick Timing Gauge, Lay. This, the "hump" gauge, is bent to allow it to be used in the same position required by the lay gauge but without removing the front box plate. When pinched between the back box plate and the front loom horn, it marks the lay position at the beginning of the pick.

In the pregauge days, fixers timed their looms visually, "eyeballed" the setting in at crankshaft top center. Naturally, pick timing was a rather casual operation in which each fixer exercised his choice of top centers.

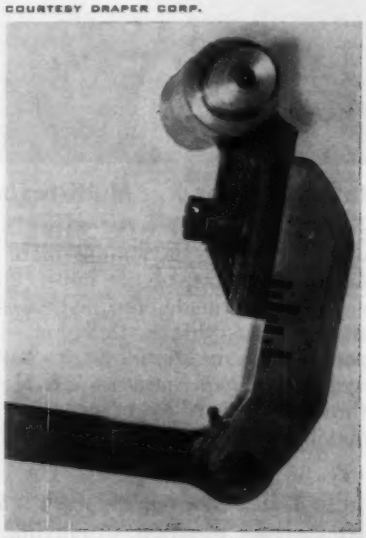
The Pick Timing Gauge, Cam. This crescent-shape member is laid atop the cam rim with the lip touching the edge of the pick cam toe slot and with the edge above the lip touching the pick ball. This allows the fixer to position the cam very near the pick point while the "hump" gauge is in place.

When Should a Part be Replaced? The correct answer to that question is worth a million dollars any day in the week. It is so elusive, in fact, that mill men remain quite happy with a working compromise.

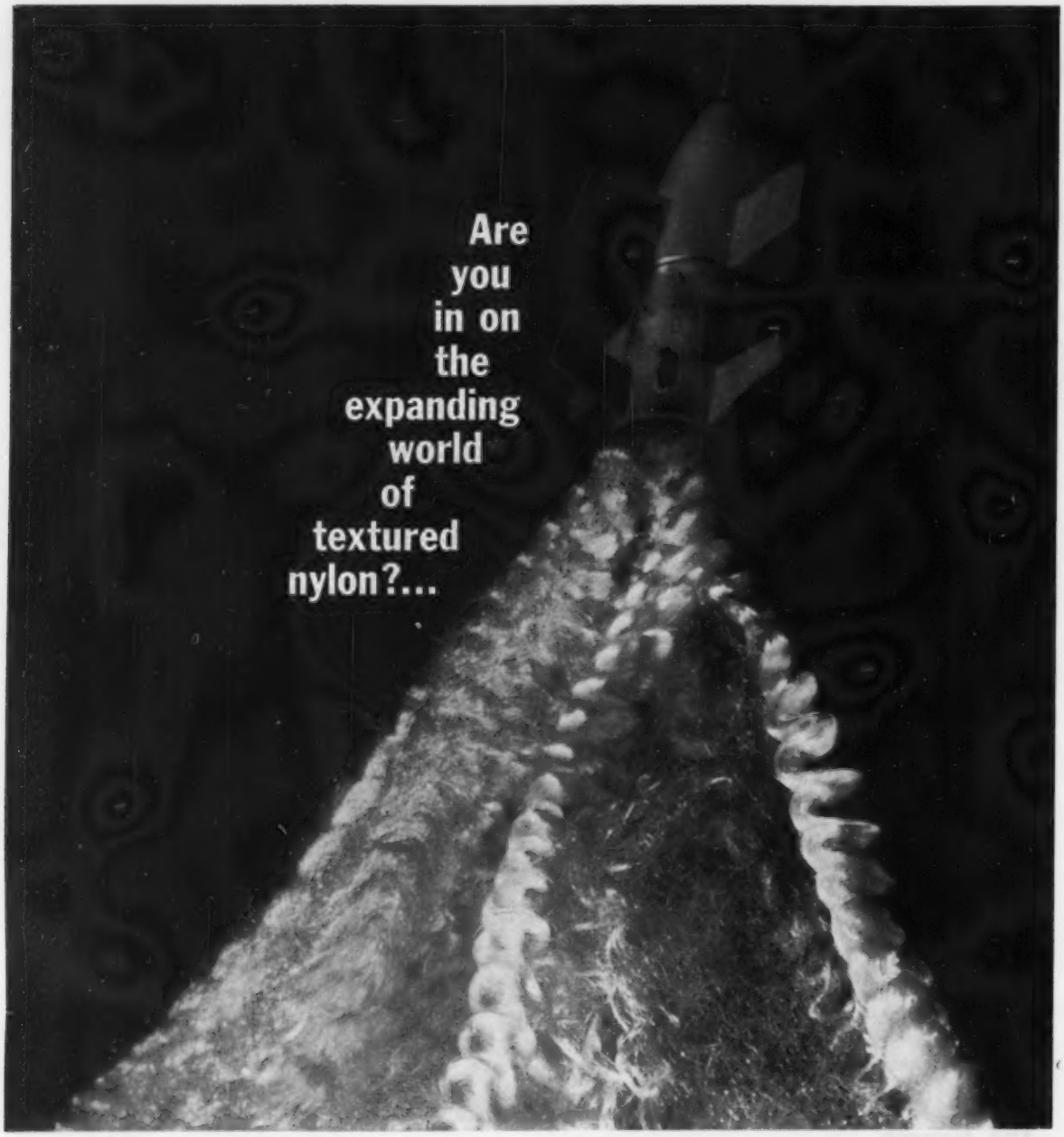
There are several illustrations of worn parts accompanying this discussion of picking motion maintenance, parts used up in duck looms and representing just about all the wear they can be expected to take. And they largely represent the management's judgment as to when the parts had "had it," were ready to give trouble.

It is a safe bet that a plant introducing preventive maintenance will truck such parts away in quantity the first time the fixers are turned loose to throw away

COURTESY DRAPER CORP.



Close-up of graduated pick arm and the metaallic lug stick with its grease fitting.



Inter-textures . . . Multi-textures . . . Space Treatments . . . Mirror-effects . . . are just a few of the new words finding more frequent use in forward-thinking textile mills. They describe new achievements made possible because of millmen, designers and stylists with vision who have seen the potential in one specific yarn—Textured Caprolan® nylon—and made the most of it. How this tough continuous filament nylon can help you enjoy new opportunities is a story we'd be happy to review with you at the Southern Textile Exposition at Greenville, South Carolina.

And wait until you see the examples of the amazing versatility of this extraordinary new fiber. Why, Caprolan is causing a revolution in carpeting, upholstery fabrics, and seat-belt webbings—all of which will be on display in our booth. You'll also be interested in seeing an exciting array of products made with our high-tenacity, heat-stabilized Golden Caprolan yarns. More proof that the most versatile nylon yarn is

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caprolan
NYLON OF THE 60's

Dagger action photographed under stroboscopic light while the loom was running shows dagger well away (mill studies on power are best carried out with white lines approximately ¼" apart) from the frog steel at the moment the shuttle reaches the binder swell—the point of earliest protection. This loom was being rocked without a warp, so the power demonstrated here may prove inadequate when warp is installed.

everything they find worn out. The second time around the cycle, the fixers will find fewer parts that have "had it." Sometime after the second cycle, the parts replacement begins to level off as fixers and management find they can predict parts life (the trouble-free portion) with some accuracy —and comfort.

That is just about the story. A duck mill will have to study parts life until it becomes obvious that a part can or can't be left in service for another cycle. Likewise for the weavers of fine filaments and for every plant in between.

There are some conditions of wear, however, that can be quite well defined as "incipient" failures—a high-brow word suggesting the beginnings of failure—or conditions that mark the beginnings of failures. And there are always the illustrations of the worn parts to fall back on . . .

to be continued

Know where the different kinds of fibers in a blend yarn go?

■ THE DISTRIBUTION of fibers in a blend and the effect of fiber distribution on the physical properties of blended yarns were discussed by Myron J. Coplan, assistant director of Fabric Research Laboratories, Inc., at a recent two-day conference on blend fabrics at the Quartermaster Research and Engineering Command in Natick, Mass.

Mr. Coplan's paper was entitled "Some Effects of Blend on Structure," and he explained that the research had been directed at developing concepts of fiber distribution in a blend and interpreting practical implications, rather than at cataloguing the merits and demerits of various specific blends. In other words, the research, which was sponsored by the Office of Naval Research and the Navy Bureau of Supplies and Accounts, attempted to develop broad statistical and other procedures that could be applied to the design of yarns blended of any fibers at any percentages.

The woolen-spun yarns which Mr. Coplan studied were 100% wool, viscose, or nylon and blends of wool with either viscose or nylon at varying percentages. Microscopic examinations of yarn cross sections yielded the following information on where fibers locate in a blended woolen-spun yarn:

a. The core of a wool blended yarn is proportionately high in non-wool content; the periphery is high in wool. Although this generally holds true along the full length of the yarn, the percentages at consecutive cross sections are not uniform, indicating considerable variability.

b. When either viscose or nylon is blended with wool the "packing factor" of the yarn core increases and therefore the yarn center becomes more densely populated with fibers than is the case with 100% wool. In such blends, the spaces between wool fibers in the yarn core become filled with non-wool fibers. For example, a 100% wool yarn may have 30 wool fibers in its core. A similar yarn of 75% wool and 25% viscose may still have close to 30, perhaps 28, wool fibers in the same core area but there will also be 10 viscose fibers. Such a "packing" at the core makes the yarn less flexible, soft, and "wooly." Changing the crimp of the non-wool fiber, however, can cut down on this packing factor, Mr. Coplan said.

c. In no blend are fibers distributed randomly; *statistically* they tend to blend in groups of two or three with like fibers held together mechanically.

The behavior of blends is not always predictable in simple arithmetic proportions, Mr. Coplan said. For example, a 75-25 blended yarn may exhibit only 10% of the tensile strength characteristics of the 25% fiber, depending, of course, on the constituent fibers. All blends, however, follow a statistical pattern, according to Mr. Coplan, even though it may be complicated. While it is impossible to depend upon yarn properties reflecting fiber properties in precise proportion to the blend percentages it is entirely possible to take into account the statistics of blending and plan accordingly.

Several examples were cited in which statistics of blend distribution can explain the mechanical properties of blended yarns. One, particularly easy to understand, is a wool-viscose blend in which the viscose fibers congregate in proportionately large number at the core while a relatively large number of wool fibers are on the periphery. Such a yarn exhibits out-of-proportion stiffness properties because of the viscose concentration at the core but its surface characteristics remain very wool-like.

Similarly, wool-nylon blends, with nylon congregating at the core, exhibit poorer elastic properties than 100% wool at 5% strain, but are improved over wool at 15% strain. This "taking over" by nylon of the elastic properties holds true even though the percentage of nylon in the blend may be relatively small, Mr. Coplan pointed out.

"Research over the last fifteen years has developed workable theories on the translation of fiber properties into yarn and fabric properties in materials of one fiber type. A statistical understanding of the peculiar manner in which two or more different fiber types combine enables the application of these theories—with some modifications—to blended structures," he concluded.

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HOW OTHERS MANAGE

New questions and answers on fiber additives

(In our June 1960 issue, p 71, we reported the results we had obtained from a survey of mills using fiber additives. The report left many questions unanswered—indeed, not even asked—as the compounds are still rather new. So we welcome the following unsolicited letter, with its new questions, that came in from "south of the border." Since we did not have the answers, we sent a copy of the letter to a couple of suppliers. The letter and the only reply we have received follow.—The Editors)

THE EDITORS:

I should like more information on the fiber additives discussed in your June issue. For instance:

Will the use of the additives interfere with indigo dyeing? Seventy per cent of our production is blue denim.

Is the product of a toxic nature that will prohibit its use on fibers destined for flour-bag use?

If the major trouble seems to be card loading, is it possible to introduce the silica at the card web?

Since the results so far obtained are so varied and so confusing, is the initial investment within reason? Will it permit a small company to conduct tests, knowing that the results may be negative, without the money spent being a complete loss?

CONTRIBUTOR No. 1259
(Mexico)

. . . We can supply a compound that will in no way affect the dyeing characteristics of cotton, whether for indigo or for any other type of dyestuff. The product contains no chemicals that are toxic in nature.

With the exception of the colloidal silica, all the components used are approved and used at some time in food products, pharmaceuticals, and the like. The amount of silica going into the cotton is too low to have any toxic effects, and the silica does not dust nor fly off to any extent when the cotton goes through the mill.

If diluted and sprayed at less than one per cent of the weight of the cotton (according to the technical data we supply) and applied through the vastly improved Russ Long spray equipment, its use will not cause loading at the cards. Those mills that have had trouble

Get your ideas into this new kink contest

Every kink, short-cut, time-saver, or quality improvement suggestion entered in the contest will be paid for immediately upon acceptance, and the $100 award will be made to the winner as soon as all entries are judged.

The contest rules are simple:

► All contributions must be postmarked not later than midnight, December 15, 1960.

► No limit to the number of entries an individual may submit in any one contest.

► All entries paid for upon acceptance—no waiting. Extra payment for photographs that are usable. Extra consideration is also given kinks accompanied by legible pencil sketches or drawings.

► Entries must not have been published previously and must not be submitted to any other publication.

Send your contest entry to: The Editors, TEXTILE INDUSTRIES, 806 Peachtree St., N. E., Atlanta 8, Georgia.

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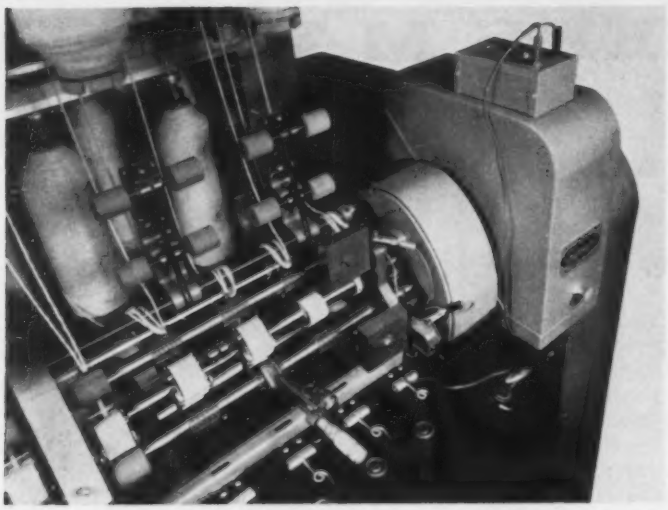

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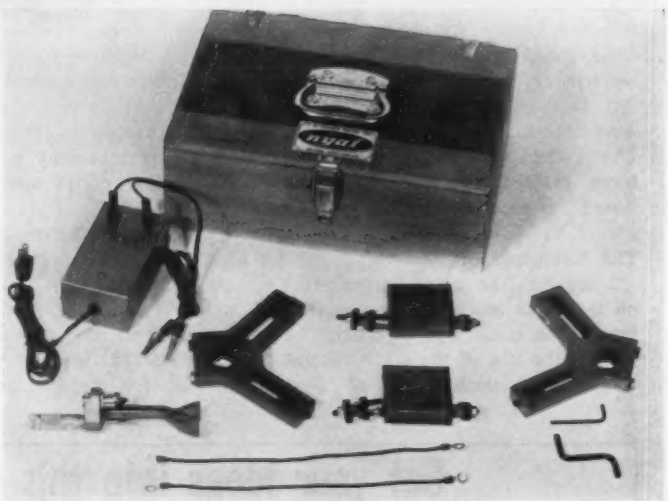

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either spray too heavily (at 1.5 to 2.0%) or use an improper spray system. We recommend spraying either at the picker hopper or opening feeder, not on the card web.

We hear complete satisfaction voiced over the use of the compound on hundreds of millions of pounds, and in view of that we do not feel that a sum somewhat under $300 (this includes a spray system and 55 gallons of the compound) is an excessive amount for even a small mill to risk in evaluating its use.

WILLIAM F. LUTHER, PH.D.
Lutex Chemical Corp.

A study of twist changes resulting from unwind method

THE EDITORS:

Large organizations with plants in different parts of the country have suggestions sent to the main office from time to time. One southern plant sent in a suggestion to pull the yarn over the top instead of the side when checking the twist on cotton ply yarn bobbins.

The head office decided to have the comments of one of their New England mills in regard to the suggestion since it was well known that this mill was a strong advocate of pulling the yarn from the side.

Naturally the suggestion created quite a stir in the northern firm. It had always been felt in this mill that pulling over the end of a unit would cause some change in the twist—plus or minus.

Nevertheless, since orders were orders, it was decided to make a somewhat exhaustive investigation.

As the twisting machinery was in good condition, it was decided to take one bobbin from each of five twisters running on 95s (6.4 tex) six-ply cotton yarn. To make certain that everything was in correct shape, the speed of the selected spindles (tape driven) was checked, the spindle whorls were measured, and the delivery rolls calipered. The research department, which did the measuring, considered all in order.

It was decided to test the twist on both a partially filled bobbin and a normally full one. This was done by winding approximately 20 to 30 layers of yarn on each of the five bobbins. These bobbins were properly marked for identification.

The twist was then checked both ways: pulling the yarn from the side, and then from over the top of the bobbin. To have the tension equal on all the material untwisted, a 100 grain tension weight was applied before the yarn was fastened in a twist testing apparatus (10″). The results of the small bobbin twist tests are shown in the Tabulation A.

The small bobbins were then put on their respective spindles again and filled to their full (standard) size. The full bobbins were also checked for twist—from the side and over the top. The results are shown in Tabulation B, *Table 1.*

An analysis of the results shows that pulling over the top yields a slightly higher twist, proving that a fraction of a turn was being added. Also noted was the fact that the smaller bobbin showed a greater acquisition of twist. This is a logical occurrence, since there will be more coils removed over the top of the small bobbins than from the larger bobbins.

Because of the addition of twist, even though it was a minor thing, the New England mill recommended that the twist test should continue to be carried out in the manner usual in this mill—pulling the yarn from the side of the bobbin.

CONTRIBUTOR No. 1255

TABLE 1

Effect on Twist of Pulling Yarn From Top and From Sides of Partially Full and Full Bobbins

Yarn: 95s (6.4 tex)—five-bobbin tests

Tabulation A—Partially Full Bobbin

	Side	Top	Side	Top	Side	Top	Side	Top	Side	Top
	20.00	21.00	20.50	21.00	21.00	20.50	20.50	20.75	20.50	21.25
	20.75	20.50	20.25	20.75	20.00	21.00	20.75	21.25	20.00	20.00
	21.75	21.00	20.75	21.25	21.25	21.00	20.50	21.00	20.00	20.75
	21.00	21.75	20.50	20.50	20.50	21.25	21.00	21.00	20.50	20.00
	20.75	21.75	20.75	21.25	20.25	21.00	21.50	20.75	20.00	20.75
Average	**20.85**	**21.20**	**20.55**	**20.95**	**20.60**	**20.95**	**20.85**	**20.95**	**20.20**	**20.55**

Tabulation B—Full Bobbin

	Side	Top	Side	Top	Side	Top	Side	Top	Side	Top
	20.75	21.00	21.00	21.50	20.75	21.25	21.25	21.00	21.50	21.25
	20.50	21.00	21.25	20.50	21.25	21.50	21.00	20.75	20.50	21.00
	21.25	20.75	21.25	21.25	21.00	21.00	21.00	21.50	21.00	21.00
	20.50	20.75	20.50	21.25	21.25	21.50	21.00	21.25	20.75	21.00
	21.00	21.00	20.50	21.50	21.50	21.75	21.00	21.50	21.00	20.75
Average	**20.80**	**20.90**	**20.90**	**21.20**	**21.25**	**21.40**	**21.05**	**21.20**	**20.95**	**21.00**

Summary

	Tabulation A		Tabulation B	
	Side	Top	Side	Top
Grand Averages	20.61	20.92	20.97	21.14
Per Cent Variation	1.50 (greater)		0.80 (greater)	

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Full-fashioned hosiery will return!

THE EDITORS:

There is one question in the full-fashion industry today that I have heard and keep hearing from everyone in the business with whom I have come in contact: "Will full-fashion come back?" I have been asked my opinion on this from everyone, from the mill owners on down to the janitors in various plants. It is my opinion that the answer is "Yes."

My opinion is not based merely on hope and wishful thinking but on facts, careful thought, and consideration.

There is nothing more appealing to the male species of the human race than a nicely dressed female with a well-rounded pair of legs encased in a nice pair of nylons with a straight seam down the back. I have talked with hundreds of men and without exception this has been the given opinion.

I have seen women at church and various social gatherings with the bare-leg look. No matter how smartly dressed they are, they do not look smartly dressed nor do they look as appealing to the eye of the male as the lady who might be less smartly dressed but has a nice looking seam down the back of her leg. I have never seen a picture or news film of any of the world's leading glamorous stars with the bare-leg look. They all wear seams.

I am no authority on sex appeal but like all men I do know beauty when I see it. When the female population wakes up and realizes that they have forfeited one of their most powerful weapons in their ever-lasting battle, to trap and enslave the male population, full-fashion will be back.

In various occupations, female employees are required to wear stockings on the job. Why does management require this? They do so because they want the personnel in their employment to look neat and smartly dressed.

In jobs that have this requirement the ladies have turned to the seamless type of stocking because

they do not have to worry about keeping the seam straight. I see their point of view in this and sympathize with them, but they have defeated the management's purpose.

There are two things that are repulsive to all the men I have talked with on this subject. These are crooked seams and baggy stockings on a female leg. To me, personally, there is no worse sight than a nicely dressed woman with baggy stockings. The full-fashion stocking is the only one made that really fits and does not wrinkle and bag around the ankles and elsewhere, provided the proper size is worn.

With the improvement in yarn and the manufacturing process, particularly seaming, the problem of keeping the seams straight is not too difficult today. With a little effort the seam can be kept straight but with any kind of stocking other than full-fashion they cannot be kept from bagging. A crooked seam, to the male mind and eye, is definitely the lesser of the two evils.

It is my opinion that full-fashion will be booming in the near future and there will be a mad scramble in the industry, the likes of which has never been seen. A big majority of the full-fashion machinery is in a sad state of repairs. There has been little reconditioning of machinery for several years and virtually no new machinery installed.

I believe that in a short while the mad scramble for new machinery and new parts for over-hauling and reconditioning will be on. There will be a state of feverish activity that we have never before experienced and full-fashion will be back.

CONTRIBUTOR NO. 1260

Files P & L sheets according to mill sales

THE EDITORS:

Balance sheets and profit and loss statements are commonly filed by months, thus forming a historical record. Such a file is valuable, but when additional carbon or photostatic copies of the financial statements are available, then a special kind of file may at times be even more valuable. In such a file the financial statements are arranged according to some index of mill activity, often sales volume. A diagrammatic representation of such a file is shown here.

For practical utility, such a special file should seldom contain more than 24 monthly statements. After that point has been reached, the addition of each new monthly statement should be accompanied by the elimination of the oldest statement in the file.

It should be realized that many of the expenses of business tend to fluctuate more or less in sympathy with sales volume. A month of high sales volume means a month of

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★ Weighs only 7¼ pounds.

Photo courtesy of Edda International Corp.

Watching the weft thread being blown into the shed of a shuttleless loom.

Photo courtesy of Warner & Swasey Company

Measuring the speed of a twister-winder to an accuracy of 1%.

Photo courtesy of Leesona Corporation

A close-up check of the constant balloon size during a twister-coner operation.

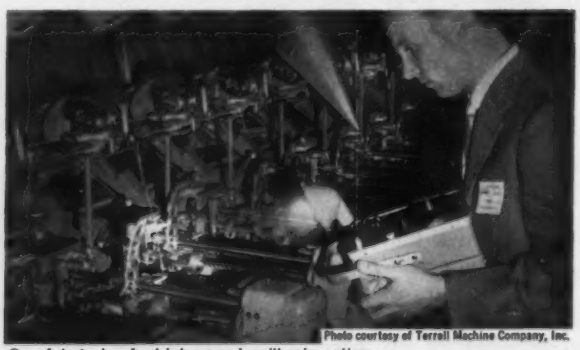

Photo courtesy of Terrell Machine Company, Inc.

Careful study of a high-speed quiller in action.

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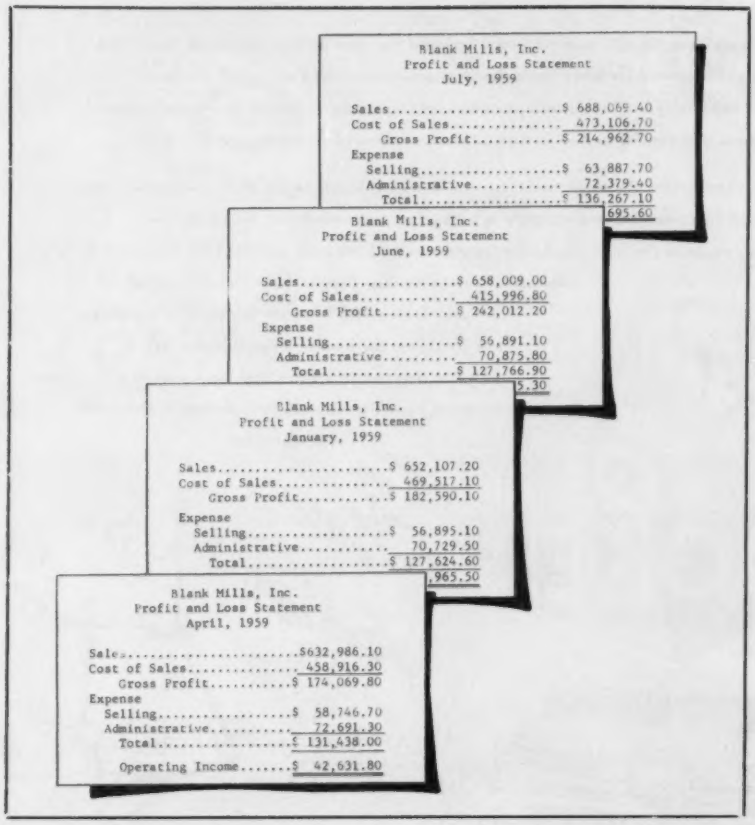


Blank Mills, Inc.
Profit and Loss Statement
July, 1959

Sales	$ 688,069.40
Cost of Sales	473,106.70
Gross Profit	$ 214,962.70
Expense	
Selling	$ 63,887.70
Administrative	72,379.40
Total	$ 136,267.10
	695.60

Blank Mills, Inc.
Profit and Loss Statement
June, 1959

Sales	$ 658,009.00
Cost of Sales	415,996.80
Gross Profit	$ 242,012.20
Expense	
Selling	$ 56,891.10
Administrative	70,875.80
Total	$ 127,766.90
	5.30

Blank Mills, Inc.
Profit and Loss Statement
January, 1959

Sales	$ 652,107.20
Cost of Sales	469,517.10
Gross Profit	$ 182,590.10
Expense	
Selling	$ 56,895.10
Administrative	70,729.50
Total	$ 127,624.60
	,965.50

Blank Mills, Inc.
Profit and Loss Statement
April, 1959

Sales	$632,986.10
Cost of Sales	458,916.30
Gross Profit	$ 174,069.80
Expense	
Selling	$ 58,746.70
Administrative	72,691.30
Total	$ 131,438.00
Operating Income	$ 42,631.80

business activity which to some extent affects most of the departments of the mill.

As a result, many expenses tend to increase during periods of sales activity. By the same token they tend to decrease during months when sales are quiet.

If in any one month an expense item distinctly contradicts this fundamental relationship, such contradiction may well call for an investigation.

It should be noted that the mere fact of a contradiction is in itself far from conclusive. It does, however, tend to arouse curiosity as to the "whys" and "wherefores". The special file referred to provides a semi-automatic means of attracting attention to such contradictions. When the profit and loss statements are arranged according to monthly sales volume, the special file will immediately point out the "absence" of successive monthly increases in sales.

Certain items on balance sheets also tend to fluctuate somewhat in harmony with sales activity, the principal items being inventories and receivables. A special file of balance sheets arranged in order of sales volume provides a quick and semi-automatic means of checking for abnormalties of inventories and receivables. Here again the file merely suggests a need for investigation, but in serving that simple function it more than justifies its existence.

CONTRIBUTOR No. 1257

Slower shuttle speeds upped production

An experiment on the narrow fabric looms at the Westboro Weaving Company in Greenville, S. C., has resulted in more weaving output through slower shuttle speeds. The reason for the seeming paradox is in "controlled power transmission" that permits a slower shuttle speed and consequently less end and filling breakage.

The belts are a combination of chrome-tanned leather with a polymer plastic core, and they eliminate start and stop slippage at high ratios and short center distances.

EXTREMULTUS, INC.

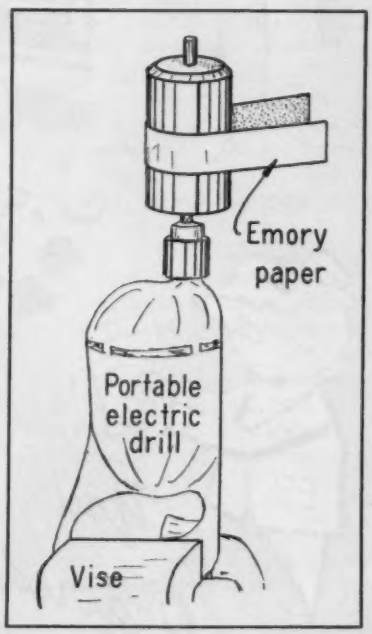
Keep a length of ¼" pipe handy

THE EDITORS:

A length of ¼" pipe is a handy tool for the electrician to keep in his tool box, especially whenever a lead anchor has to be installed in a masonry wall to hold a conduit strap. Aside from its small size and usefulness in numerous ways, it saves many trips back to the shop in search of a tamping tool.

CONTRIBUTOR No. 1058

Electric drill as power source



THE EDITORS:

When any small roller needs polishing or cleaning in our mill we often use the method described here (see the accompanying drawing). A portable electric drill is held in the vise as shown, and the

We thank the many textile mill men who crowded into our jam-packed display at the ATMA Exhibition, for their patience and for their enthusiastic comments on the Cocker GH Slasher.

We thank you especially for the orders placed at and since the Exhibition — more orders than have been placed in a similar period in Cocker's many years of leadership in this field.

You will again have the opportunity to see this exceptional slasher at the Greenville Southern Textile Exposition and this time you can compare it with other make slashers. We invite you to examine the many exclusive features which have been standard for years and its new features. See the Cocker Torque Tube Drive* and the new Cocker HD Cylinder Section and let us give you full details on the Cocker Type B Beam Drive.

We know that you will agree that the Cocker GH is by far the most economical, versatile, and efficient slasher in the world.

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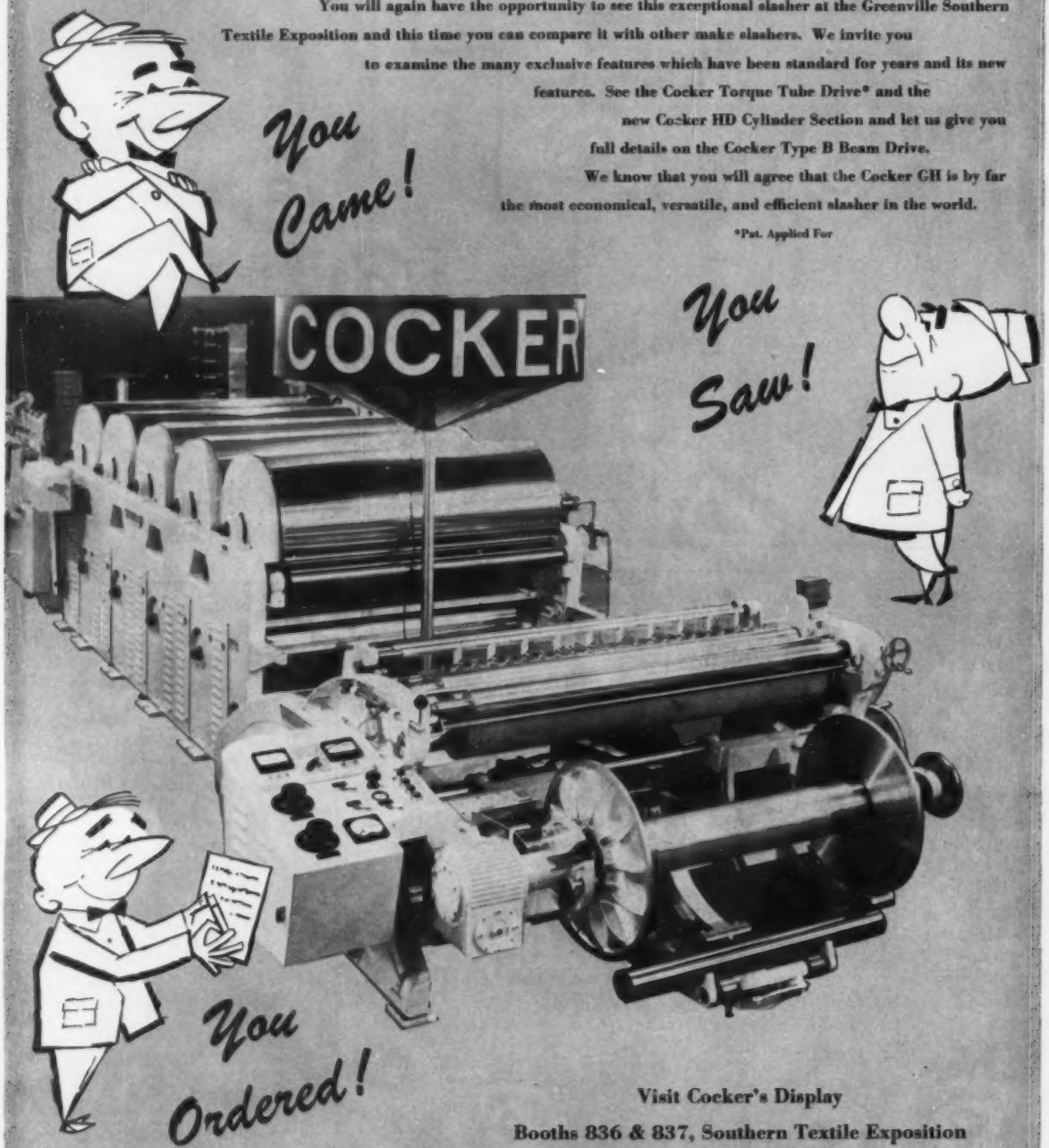

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neck of the roller is clamped in the drill chuck. As the drill turns the work, we hold emery cloth against surface to be cleaned. The system makes light work of an otherwise tedious job.

CONTRIBUTOR No. 9092
(Australia)

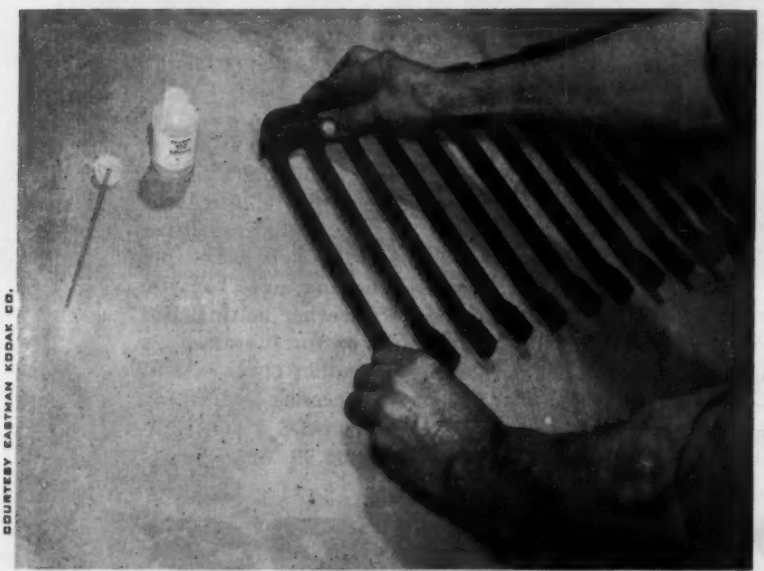
Glue permits in-place Jacquard repairs

Hill, Brown Fabrics Company, Clifton, N.J., does Jacquard weaving, and occasionally a tooth on the cast iron griff rack breaks. When this happens the machine must be stopped and the entire rack removed for repair. Requiring several hours, the repair or replacement of the rack can delay completion of the run by as much as a day.

Company engineers have found it possible to replace broken teeth in a matter of minutes without removing the griff rack from the loom using a strong, quick-setting bonding agent.

To date the adhesive has been used only as a temporary measure, allowing completion of the weaving run as scheduled. Following the run, the large comb-like rack is removed for brazing. Even so, the adhesive has performed satisfactorily over a 24-hour period, the longest yet tried.

While Hill, Brown have not calculated the savings which the adhesive has made possible they know it to be considerable.



COURTESY EASTMAN KODAK CO.

Broken griff rack being repaired with the adhesive. Normally this is performed without removing the rack from the head, and permanent repairs are made later.

Who can make it?

. . . . a means of extracting excess finishing chemicals from fabrics having a deep or fancy "face"? The usual pressure rolls destroy the loft and fancy effect of the yarns.

. . . . a stroboscopic light, in length comparable to cloth widths, which could be used to eliminate cloth bow and bias easily and economically? The cost of completely automatic equipment is prohibitive on processes where, for other purposes, a machine operative would be on the job and could make manual adjustments.

. . . . for cloth finishing, a water repellent chemical that also supplies weighters to allow adjustment of finished weight and hand?

. . . . a rugged machine or conveyor that will unload bulk salt from box cars without spreading "salt air corrosion" all over the mill?

. . . . a wood floor finish or sealer that does not become slick under high humidity conditions?

. . . . a hand tool that will rapidly remove and hold each traveler? Ring travelers from spinning frames and twisters are scattered all over the floor during changes in spite of the greatest care by the changer.

CONTRIBUTOR No. 1256

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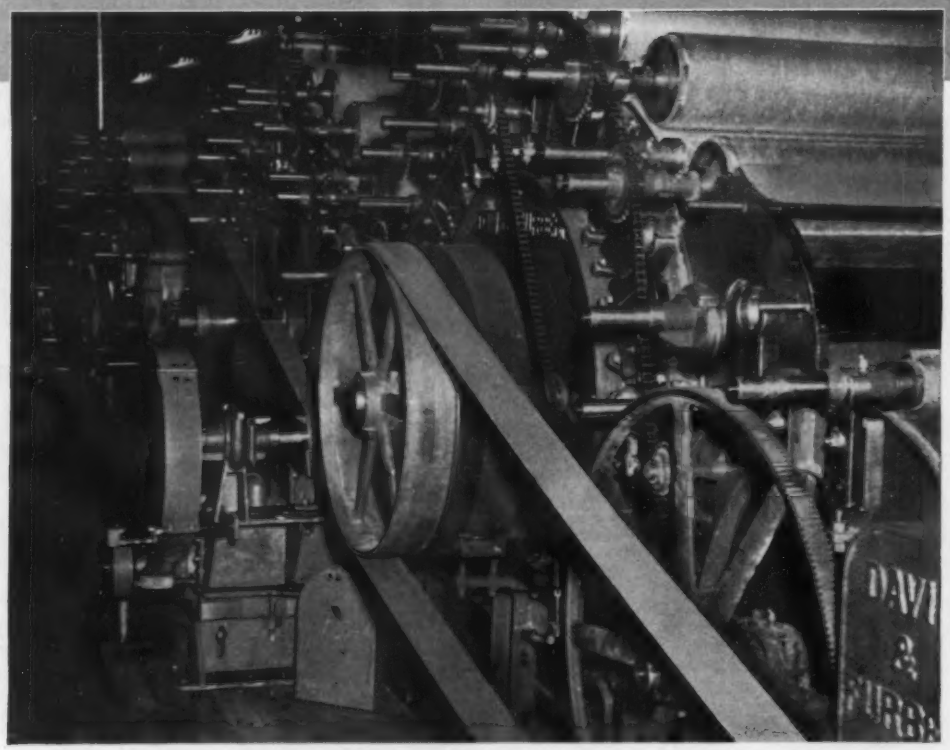

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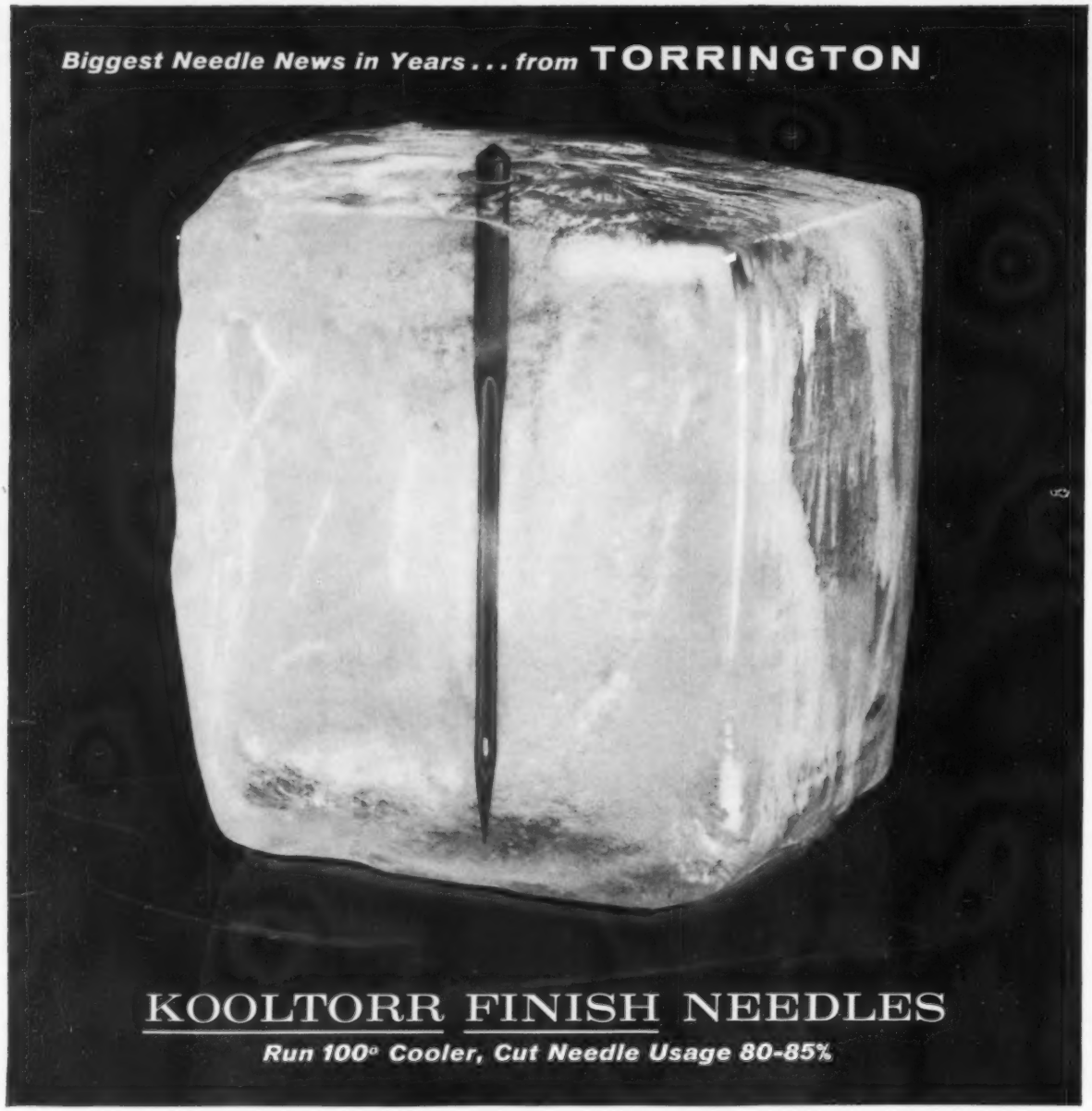

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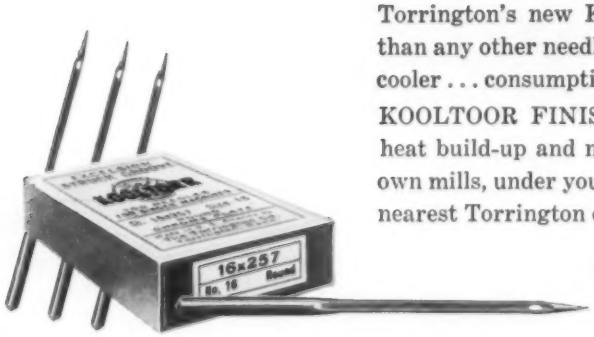

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KNITTING SECTION

ATTACHMENT MAKES CUSHION SOLE DRESS SOCKS

A salesman's chance remark led to a Komet attachment that produces a hit article

Staff prepared
Exclusive

A crew sock just completed is reversed to show the cushion sole.

A SALESMAN'S comment that he could sell cushion sole socks in dress wear has brought an idea to reality. With the salesman's comment in mind, Powell Knitting Co., Spartanburg, S. C., began a development program about two years ago which brought forth an attachment to make cushion sole socks on the Komet knitting machine. It is applicable to any double cylinder rib knitting machine.

Glen R. Farmer, superintendent of Powell Knitting Co., invented the attachment. Patents have been applied for.

The attachment is simple and when installed replaces the regular verge assembly. It requires about eight hours for installation by a competent mechanic, and upon installation the machine makes a terry loop on every course of the heel and toe and every course in bottom of foot, heel, and toe. It does not slow production.

With this arrangement, cushion soles are made on a true rib machine with the attendant advantages, including Links and Links patterns utilized in making

Continued on p. 215

NEW PROCESS

Eliminates variations in 75-Gauge Latch Needles

Textile Machine Works developed an entirely new manufacturing process for the new 75-gauge Latch Needles.

It began in the Textile engineering department, with a thorough analysis of all latch needles currently available for the knitting of ladies seamless stockings. Manufacturing techniques were studied and evaluated.

Textile engineers were not satisfied until they had developed a completely new approach — a unique and exclusive manufacturing process.

The results are now a matter of record.

The new 75-gauge Textile Latch Needles are outstanding in quality of knitted fabric, in trouble-free performance at top knitting speeds, in maintenance-free operation.

The new needles are uniform in every detail. Each is a precision knitting tool — completely free in latch movement, stronger at the latch than ever before possible, amazingly smooth in finish.

If you haven't discovered the superior performance of the new 75-gauge Textile Latch Needles, talk to the Textile representative about a trial installation in one machine, or a battery of machines. Call us today.
Textile Machine Works, Reading, Penna., or Asheboro, N. C.

TEXTILE MACHINE WORKS
Where engineering makes the difference

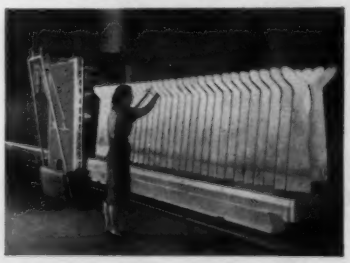
Speaking of Elasticity

Hosiery Buyer: "I want more elasticity for fullest, comfortable fit."

Hosiery Manufacturer: "I want full elasticity with or without use of pre-set yarns."

You'll both be happy with stockings dyed and finished on the *Turbo Dye Boarder.* The Turbo Dye Boarder provides the elasticity hosiery buyers insist on . . . and gives hosiery manufacturers the desired elasticity in seamless stockings with or without use of pre-set yarns in welts, heels, and toes. Stockings can be knit throughout of raw pirn yarn.

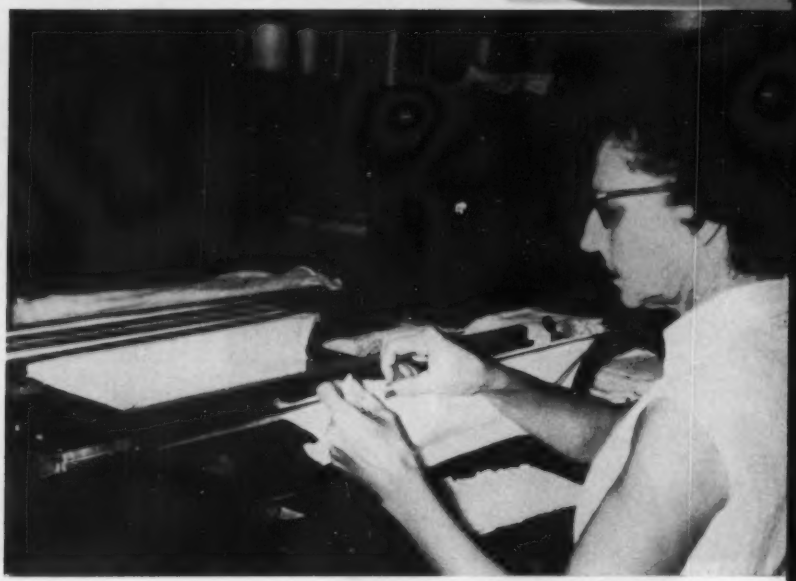
Pressure dyeing in the Turbo Dye Boarder accomplishes deep penetration of dyeing and finishing materials into the fiber, bringing about rich color values, more life and elasticity, better light and wash fastness, better snag resistance, and longer wear. Production capacity is 140 dozen pairs per shift with one operator. Bulletin on request.

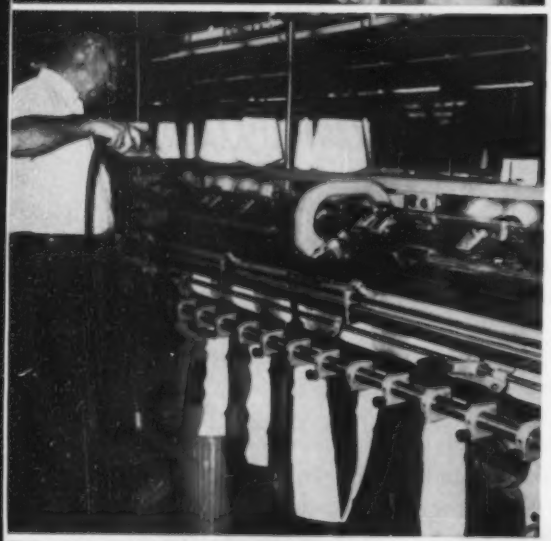


TURBO . . . a family of engineered machines

TURBO MACHINE COMPANY, LANSDALE, PA.

Licensed Builder for Spain: Argelich, Termes y C. A. Tarrasa, Spain





ABOVE. "Topper" fastens bottom rib onto bar to be fastened to body of sweater at the knitting machine.

UPPER LEFT. Knitters examine a complete set of fronts and backs each shift and note any defects for immediate attention.

LEFT. Ribbers are blown off regularly. These use little oil and consequently are relatively easy to clean.

LOWER LEFT. Knitting machines are blown off each day to help keep lint and other waste out of work.

BELOW. Clipping is done prior to final inspection.

OPPOSITE PAGE. Every completed sweater is examined on a board by a competent inspector.

Tight standards = F-F quality

Steps Austin Knitting takes to uphold its reputation for quality

Staff prepared
Exclusive

KNOWN as a maker of quality full-fashioned sweaters in classics and dressmakers, Austin Knitting Mills, Albemarle, N. C., makes only one grade of garments; namely, first quality. "Our company is dedicated to the principle of planning, making, and selling quality," says Erskine Purser, superintendent.

Only one yarn supplier is used (to help maintain uniformity standards). Close watch is kept over length control, and frequent examinations are required of all operations. Rigid standards are adhered to, and all goods with faults are thrown into "irregulars."

Here is how standards are observed: Knitters examine a complete set of fronts and backs periodically on a black table noting *any* defect whatsoever. If it is caused by a bad cone of yarn, the yarn is removed and replaced on the machine. If caused by the machine, it is fixed immediately. A "topper" who fastens bottom rib onto bar to be fastened to body of sweater also examines at the knitting machine.

Each knitting machine makes both fronts and backs for sweaters. The pattern chain is made so that one complete cycle makes one front and one back. These are matched as they come off the machine to maintain as much uniformity as possible.

One cone of yarn makes garments complete until the supply is exhausted. This helps maintain uniformity when the garments are dyed.

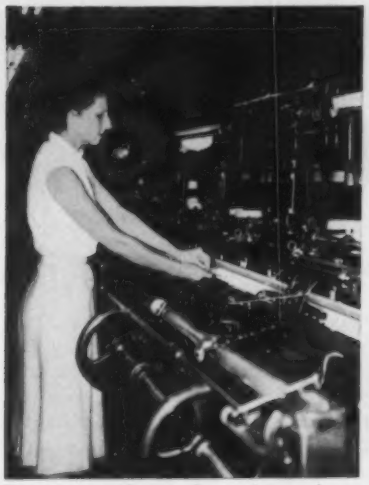
Knitting machines are maintained on a planned program. Every day they are blown off with an air hose while stopped. This helps keep lint and waste out of knitted goods.

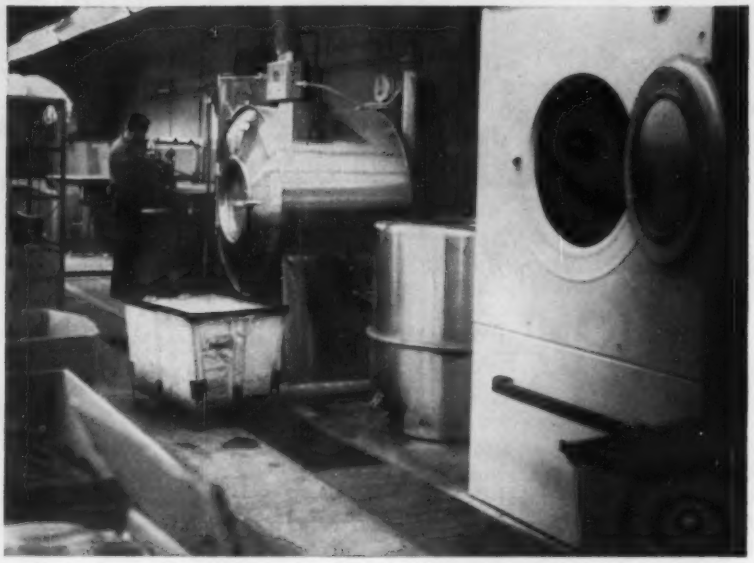
On the last day of the work week, first and second shift knitters work together from 3:00 to 4:00 p.m., while machines are standing, to clean thoroughly and lubricate all parts of the machines.

Knitting machine bearings are oiled every shift, and needle oil is applied once every 24 hours to needles, sinkers, and dividers. The oil used is soluble and non-staining. Since coarse gauge machines are used, needles require little additional maintenance. Verge plates are replaced as needed—as indicated by wear or quality of knitted goods.

Quality starts at the knitting machine, for here the product is made good or bad. A length tester has been adapted to check length control and stitch of sweaters at the knitting machines.

The knitting plant is fully air-conditioned and refrigerated by a





The topper, above, also assists and examines work at the knitting machine. To the right are pressing machine, washer, extractor, and dryer used in finishing.

40-ton air-conditioning unit to aid in maintaining uniform manufacturing conditions and for employee comfort as well. This mill is going into the 6th year of a safety record unmarked by lost time accidents.

Sewing operations, pressing, bagging, two inspections, and shipping are done at the "finishing" plant located a short distance from the knitting plant. The finishing plant equipment includes 15 sewing machines of all types, four presses, two Paris forms, and two N. Y. bulk presses.

Formerly known as Austin Hosiery Mills, manufacturers of ladies F-F hosiery, the mill organization was changed to explore new avenues and possibilities. Austin Knitting Mills were incorporated in 1956 to make F-F ladies sweaters. At the time, business was not good for commission grey knitters, and a market survey and study indicated that the facilities could be put to good use making other products. The full-fashioned hosiery machines were sold along with loopers and seamers.

New loopers, seamers, sewing machines, and three Reading 21-gauge F-F ladies sweater machines were bought. The machines had 13 sections each for two body machines and 20 heads on one sleever. Seven ribbers were bought to make trim.

From a modest beginning of 250 dozen sweaters per week in 1956, Austin Knitting Mills, Inc., had tripled their production by 1960. At present, production is largely on Orlon acrylic or Ban-lon-nylon, and yarns used are 2-29s (2/20 tex) Orlon and 5-70s (5/8 .4 tex) Ban-lon.

A good program to train loopers, seamers and knitters to do the job right is expensive. However, the necessity for making a good product made the expenditure worthwhile, and the intention of staying in the business made it necessary to gain a good reputation, according to mill officials.

Employment was tripled in the change from hosiery to sweaters, because there are more hand operations in making sweaters. The mill, headed by Ray Austin, president, has its own sales organization, and all goods are sold under brand names.

Austin Knitting Mills has built a reputation on quality, service, and dependability among their many customers throughout the United States.

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SPRING
STEEL

AMERICA'S LEADING SUPPLIER
Where
SERVICE and QUALITY
is the rule

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Chicago, Ill.—Greensboro, N. C.

Beats mayhem

A knitting plant that had difficulty keepings its two-wheel hand trucks off the floor and out of the way secured a number of spring clips (of the variety used to hold broom handles) to a wall. Trucks not in use are "parked" by standing them on end and pressing the handle into an appropriate clip. While the idea is not earth-shaking, it does save a measure of grief (and sounds and fury) in the form of stubbed toes and bruised shins aside from keeping the room more orderly.

Cushion soles

(from p. 209)

dress socks. The loop is adjustable to get the desired amount of bulk.

It is not necessary to rebuild the machine to make the change, and once the attachment is installed, the turn of a screw returns it to normal operation. The same pattern possibilities are available while operating the machine with or without.

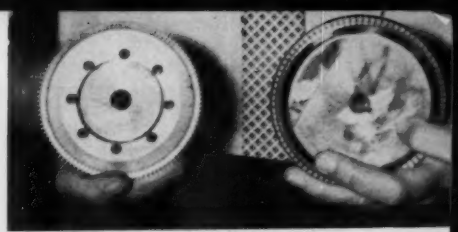
Sold under several brand names, the cushion sole socks made by this method have met with immediate acceptance. All of this mill's production is sold, and production is being increased as fast as possible.

Yarns presently used include Ban-Lon 200-700 denier (22 to 76 tex); Dacron-cotton 65-35 blend; mercerized cotton; Orlon and others. This mill starts with the yarn and makes finished socks in a complete range of styles and sizes.

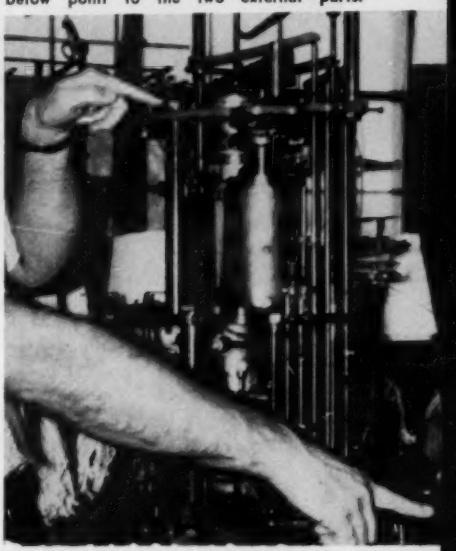
No finishing problems result from the cushion sole construction. The socks are finished the same as other socks from the same machine would be, except more time is required to dry when socks are not tumbled before boarding. Most socks made here (except wool) are tumbled before boarding, and no more time is required to dry. In other instances, about 10% more time would be required to dry socks with cushion soles.

The demand for cushion sole socks of the athletic type is increasing tremendously, according to officials at this mill, and this has created a public consciousness, trend, and demand in the dress category. No such product has been available until the introduction of this cushion sole.

Samples were marketed about a year ago, and with no promotion, the demand increased naturally. Out of 300 accounts, reorders of 70% of accounts have exceeded initial orders—an indication that public acceptance is awaiting desirable quality products.



Standard verge assembly (left) and a replacement of a different gauge. Hands below point to the two external parts.



A few of the many styles of men's dress socks made with cushion soles; (l to r) 84-needle Bentley Komet L&L, two ends of 2/140 (32 tex) Tycora and one end of 2/70 (16 tex) Tycora; 132-needle S&W L&L, two ends of 2/70 (16 tex) Tycora; 200-needle S&W Komet, two ends of 1/100 (22 tex) Ban-Lon; 84-needle Bentley Komet L&L, 75-25 blend of Creslan and cotton, two ends of 1/12 (72 tex) worsted yarn (sock reversed); at the bottom is a 132-needle S&W straight rib, 65-35 Dacron/cotton, two ends 16s (36 tex).

Du Pont's New Rapid Bleach Process Cuts Bleaching Costs... Improves Dyeing Quality

DU PONT
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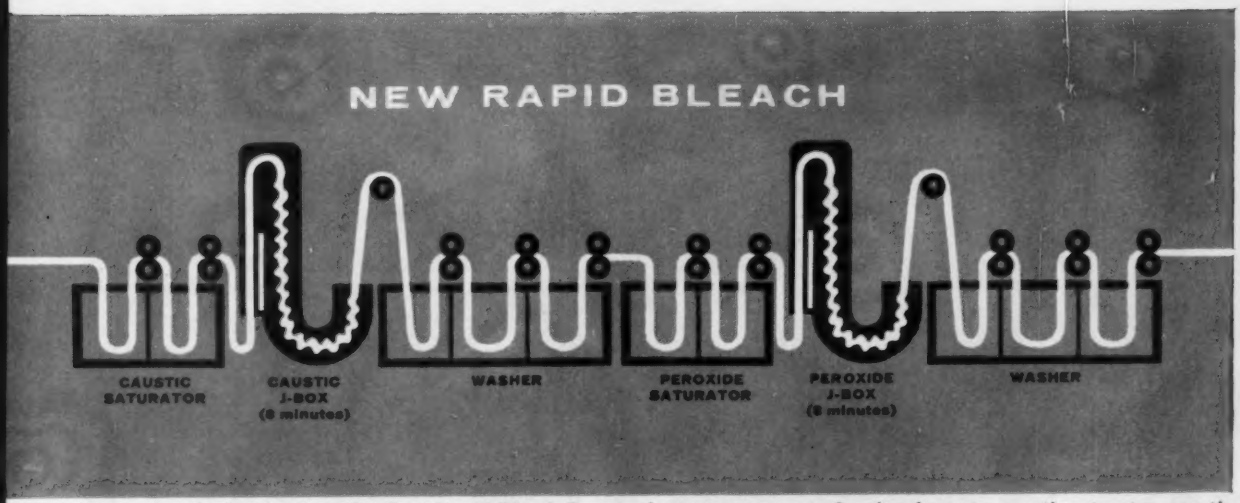
ALBONE® hydrogen peroxide **SOLOZONE**® sodium peroxide **PERDOX**® sodium



Diagrammatic sketch of new Du Pont Rapid Bleach Process shows arrangement of major elements: caustic saturator, caustic J-box, washer, peroxide saturator, peroxide J-box and final washer. Operation saves time, cuts operating costs. It can be used for medium-weight cotton fabrics and is especially suitable for hard-to-handle heavyweight fabrics that are susceptible to bruising.

Production-scale operations prove the superiority of the Du Pont Rapid Bleach Process over conventional methods for preparing heavy cotton fabrics for dyeing and finishing . . . at a lower cost.

The new Du Pont Process (shown above) prepares fabrics for finishing with high absorbency and exceptionally good dye receptivity. You obtain high color values and much greater clarity from the dye colors used. And you do it faster and easier.

Du Pont Rapid Bleach is a continuous process . . . specifically designed for medium to heavyweight fabrics. It's unique, simple and fast. Has caustic pre-treatment in the first J-box. The new two-stage process reduces cloth storage time to as little as 8 minutes in each J-box. Makes substantial savings possible over batch methods.

This new method introduces an open-width, continuous process designed for the preparation of sensitive fabrics (such as twills, drills, poplins, etc.) for dyeing. It reduces seconds and rejects due to bruises, rub marks and creases and can be readily adapted to any continuous, or semi-continuous, open-width system.

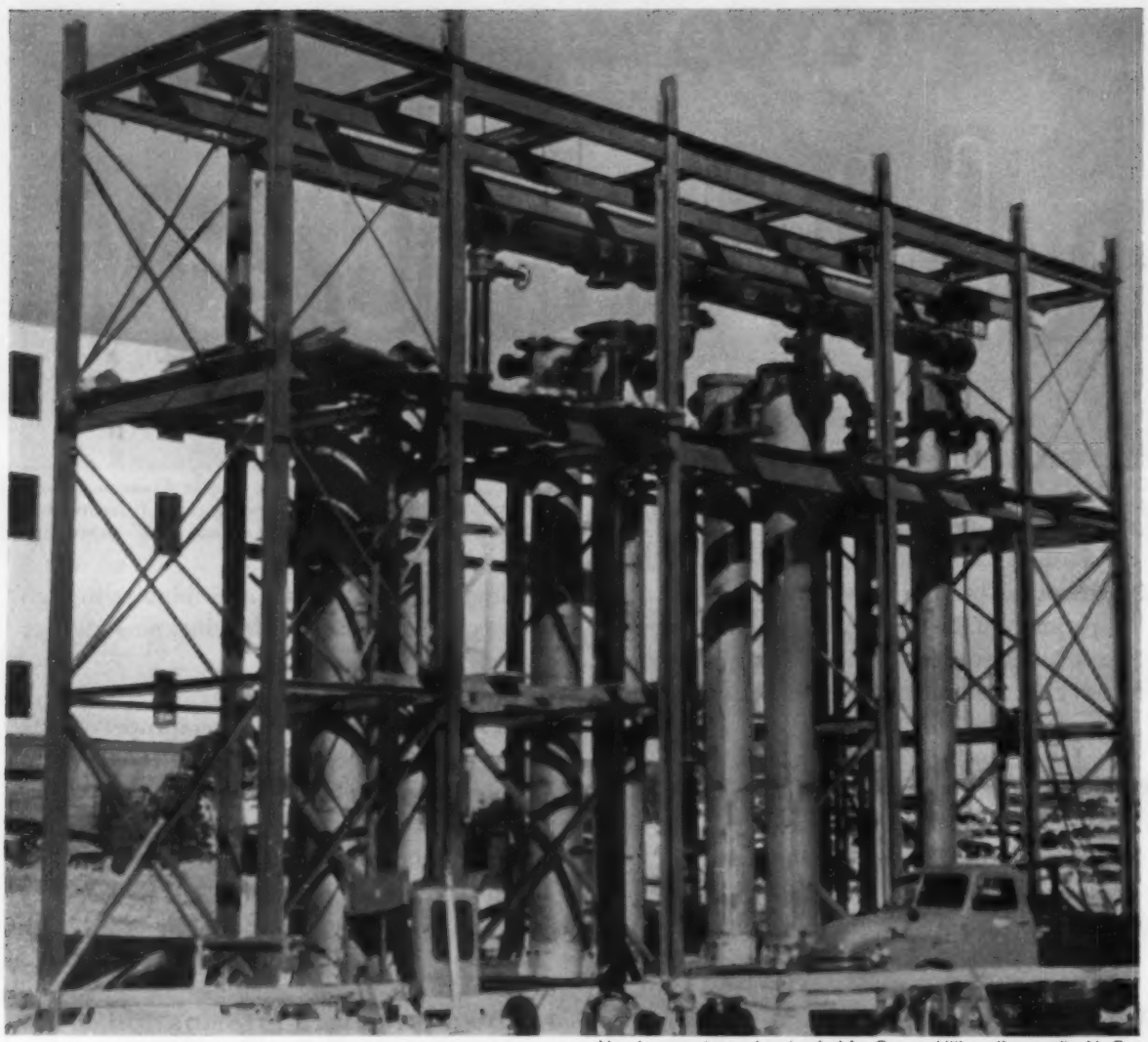
If you'd like more information on new Rapid Bleach, call your Du Pont Representative. He's a specialist in textile bleaching and will be glad to show you how this new process may profitably fit into your mill.

DU PONT BLEACHING PRODUCTS

assure you of the best bleaching results every time. They help speed bleaching operations more economically. They're thoroughly tested and proved out in successful mill operation. All are readily available from convenient shipping points to assure prompt delivery. Du Pont, Electrochemicals Department, Peroxygen Products Division, Wilmington 98, Delaware.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

borate perhydrate **OXONE®** monopersulfate compound **SODIUM PERBORATE**



Now in operation and saving fuel for Cannon Mills at Kannapolis, N. C., are the eight P-K Heat Reclaimers shown here. Two units handle 500 gals./min. of liquor from desizing operations. Two handle 700 gals./min. of caustic waste. Four handle 1800 gals./min. from dyeing operations. Performance exceeds substantially that of conventional designs.

p-k heat reclaimers cut fuel cost for CANNON MILLS

Reclaiming 50- to 60-million Btu per hour, the eight new P-K Heat Reclaimers at Cannon Mills are rapidly paying for themselves. They raise the temperature of fresh water from 60° to as high as 130°F. with heat from waste desizing, caustic and dye liquors. Important too, total cost for the reclaiming installation is less than cost of new steam generating equipment. All of which is aside from fuel savings. • At Cannon Mills, as always, P-K Heat Reclaimers are custom fitted to the job. These are stainless steel, four-pass and six-pass. In operating efficiency, they lower considerably the usual 10°F. gap between final temperature of the fresh water heated in the reclaimers and the top temperature of the waste water. Only the unmatched experience and care of the largest manufacturer in the field makes this unusual performance possible.

A complete report on this installation is available upon request. The Patterson-Kelley Co., Inc.

Patterson Kelley

Laundry and Textile Division
2806 Wilson Street, East Stroudsburg, Pa.

P-K Heat Exchangers • P-K Pre-Krete Lined Storage Water Heaters • P-K Scalefree Gas Fired Storage Water Heaters • Self-Cleaning Roto Screens

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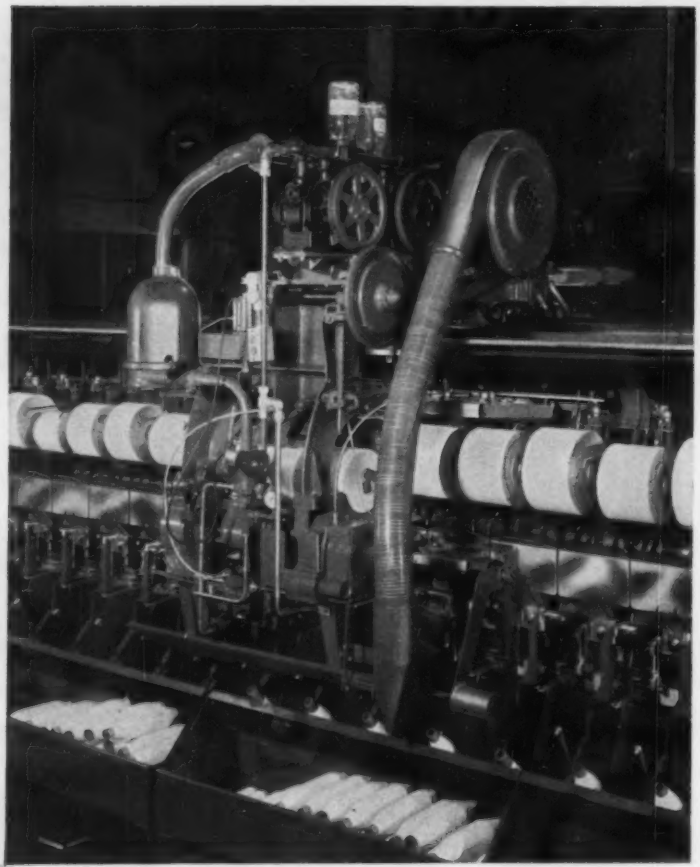
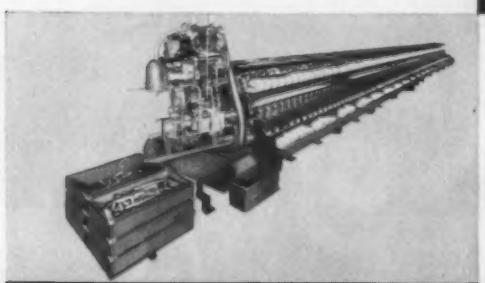
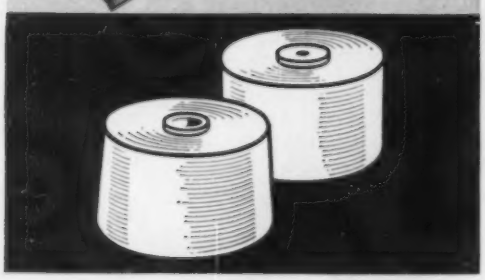
BARBER COLMAN

NEW TYPE "F" AUTOMATIC SPOOLERS

FOUR-COUNT OR MULTIPLE-COUNT







WIND CHEESES OR 6° CONES

The outstanding features of previous models are also available in the new Type "F" and "FF" Automatic Spoolers — arrangements to wind either straight cheeses or 6° cones, and arrangements for either one count on the whole machine, a different count on each of the four "quarters" of the machine, or a variety of counts extending to a different count in each "bay." These arrangements are planned when the machine is ordered, and are made when the machine is assembled on the floor. The advantage is that the ordering mill will get an Automatic Spooler of maximum versatility, exactly tailored to its needs, and capable of functioning at greatest efficiency and lowest cost. *For further details, we suggest you discuss your situation with your Barber-Colman representative.*

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • WARP DRAWING MACHINES

BARBER-COLMAN COMPANY

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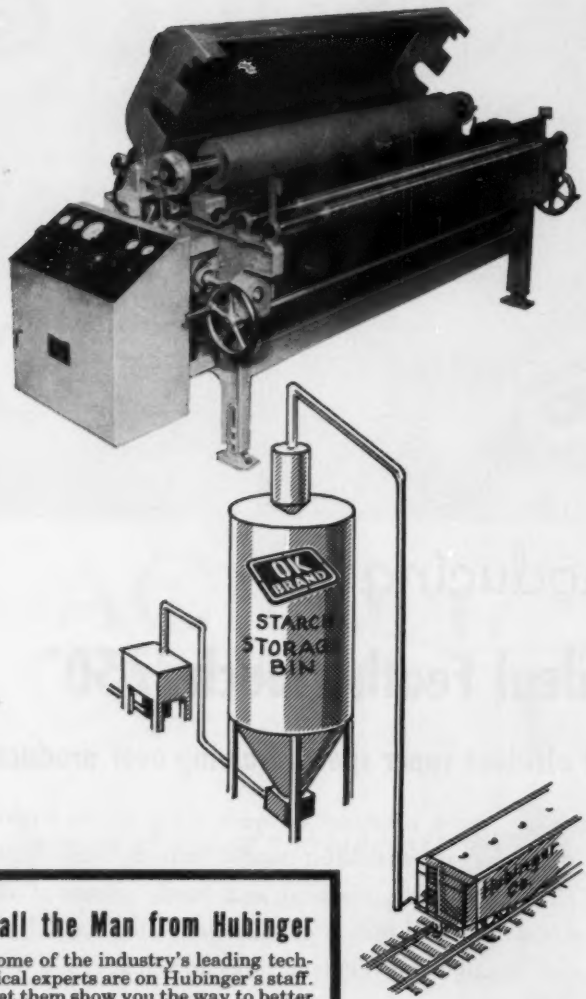
What you should know about STARCH*

YOU PROBABLY KNOW—BUT OTHERS MAY NOT



Q. How does sizing affect the breaking strength of yarns?

A. A correctly sized warp will show an increase in breaking strength of 25% to 30% and sometimes much greater.

Q. What is size migration?

A. Size migration is the transfer of size from one yarn sheet to another on the drying cans of the slasher. This occurs when two yarn sheets are sized in separate boxes and then are brought together on the drying section. The largest migration takes place on the first drying cylinder contacted.

When slashing a high count warp through two size boxes and bringing the two sheets together on the first cylinder, some size migration will always occur. All of the ends from one sheet will be in direct contact with the drying surface. Some ends from the other sheet will lie on top of ends from the other sheet. Ends next to the cylinder will dry first. Moisture (steam) from these ends pass up and through the other ends retarding drying of these particular ends. Consequently, the moist or undried size sticks or adheres to the partially dried size on the ends next to the drying surface.

Desize analysis of the separate sheets of yarn will often show a difference of as much as 3% to 4% size. The method used to prevent or reduce size migration is to run the sheets from the size boxes to separate drying cans. Then the partially dried warp sheets are brought together on the third cylinder.

Q. WHAT ARE THE BEST STARCHES AVAILABLE FOR SIZING COTTON AND SPUN SYNTHETIC WARPS?

A. OK BRAND STARCHES, of course, manufactured by THE HUBINGER COMPANY.

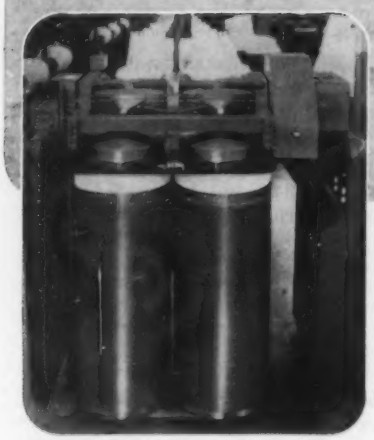
Call the Man from Hubinger

Some of the industry's leading technical experts are on Hubinger's staff. Let them show you the way to better products—and plant savings, too. The Hubinger representative will be pleased to place these experts at your service.

*One of a series of articles. Write for the complete set and for our continuing technical data service, without obligation to:

THE HUBINGER COMPANY

601 Main Street • KEOKUK, IOWA



Coiling in 15" through 18" diameter cans up to 42" high.

Introducing...

The Ideal Feathertouch '750'

The most efficient super speed drawing ever produced

This two delivery frame produces as much sliver of the highest quality as does the average latest model four delivery frame. The Ideal '750' permits safe, practical, and steady speeds of 750 fpm with far less downtime than is encountered with four delivery frames. It saves on original investment, saves floor space, and drafts all fibers and blends.

Write today for full information on the extremely efficient Ideal Feathertouch '750'.

See the Ideal Feathertouch '750' in Booths 239—240 Southern Textile Exposition.

Ideal Industries, Inc.
Bessemer City, N. C.

THE ORIGINATORS OF HIGH SPEED DRAWING

A close-up of one of the biggest trademarks in the textile industry

The big red "A"-Acrilan* trademark is the symbol of quality in fabrics. No trademark enjoys a greater acceptance. To consumers, the big "A" is a symbol of the high quality of the products they buy, because it is granted only to those mills and manufacturers meeting the specifications of Chemstrand's licensing agreement.

Throughout the years, fabrics made with Acrilan acrylic fiber have gained widespread popularity; to meet the ever-growing demand for products bearing the "A," new fabrics are constantly being developed. With the big red "A," you have one of the biggest trademarks in the industry working for you. Backed by million-dollar campaigns. So tie-in with the red "A"-Acrilan trademark, and you'll tie into extra profits.

Chemstrand has licensed this ***"A"-Acrilan trademark*** *as an ingredient trademark for those fabrications that provide utility, styling and consumer value. In order to obtain a license to use this trademark, the fabrications must meet certain rigid specifications as established by The Chemstrand Corporation.*

ACRILAN
*
ACRYLIC FIBER
*Reg. T. M.s of Chemstrand

Chemstrand makes only the fiber; America's finest mills and manufacturers do the rest.

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THE FRANKLIN SHEAR-

- with new accuracy
- new uniformity
- new smoothness

Put a whole new face on woolens, worsteds, synthetics, knitgoods and high pile fabrics with this new Gessner finishing Machine.

Revolver and knife, anchored to the main frame, reduce vibration and chatter, to produce a remarkably accurate and even cut — every inch of it uniform and smooth. We hope you will want to know more about the Franklin Shear.

DAVID GESSNER CO.

WORCESTER, MASS.

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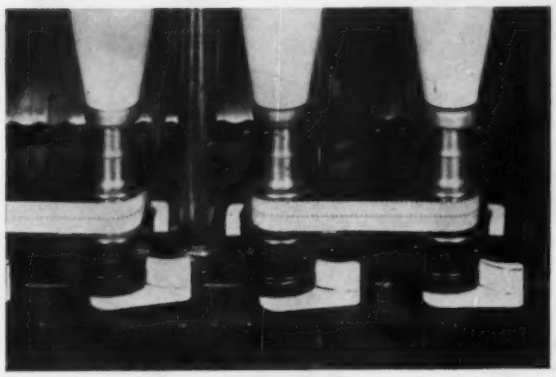
Western Representative:
E. G. Paules & Co.,
1762 West Vernon Ave., Los Angeles, California

Canadian Representative:
W. J. Westaway,
Montreal, Quebec; Hamilton, Ontario

For further information use Handy Return Card, Page 243

NEW PRODUCT PARADE

Please note: Claims made in all of these announcements of new developments are of necessity based upon information furnished by the respective suppliers.—The Editors.



Save burnt fingers, jammed bobbins

Clamp-on handbrakes that can be applied to centerbase No. 880 spindles having standard thin edge whorl flanges as well as to Whitin's newest spindles with skirt-type lower flanges (which provide a larger braking surface) apply pressure evenly and without vibration to both sides of the whorl. The molded plastic components are simple to install and easy to operate.

The quick and positive braking action that simplifies piecing up is performed by a combination of two high-strength braking arms carrying easily changed self-locking braking pads. These arms are pressed against the spindle through a molded plastic brake handle and activating cam, members quite able to withstand normal usage.

Whitin Machine Works, Whitinsville 2, Mass.

Do you want more data? Write ◂ or use card on page 243; list K-101

Tells dryer operative when to remove goods

Recently announced for control of textile drying operations is a "Moisture Indicator" which sets off a visible or audible alarm in a drying area when proper dryness of the material is reached, as indicated by the presence of static. With this apparatus the operator does not have to depend on feel to determine when the proper degree of dryness has been reached. Consequently, time is saved as overdrying is avoided, and the removal of the material from the dryer before it is ready is avoided.

A Simco Electrostatic Locator is used to show when static electricity begins to form in the material being processed. The output of this instrument is connected to a relay system to set off the alarm desired.

The Simco Co., 920 Walnut St., Lansdale, Pa.

Do you want more data? Write ◂ or use card on page 243; list K-102

Mote knives sharpened and straightened

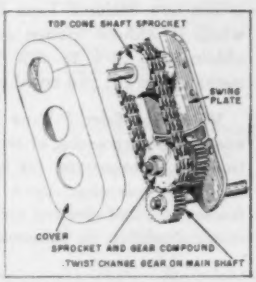
Mote knives, beater blades, etc., are machined, ground and straightened to restore their cleaning power—a pick-up and delivery service. Cold-rolled steel knives are also available if replacements are needed.

Jenkins Metal Shops, P. O. Box 1160, Gastonia, N. C.

Do you want more data? Write ◂ or use card on page 243; list K-103

Chain drive for fly frame twist gearing

A chain-drive twist gearing changeover for roving frames requires the fixer only to change the gear on the main shaft at the No. 2 samson when making minor twist changes. Custom tailored, the drive is yet an economical changeover in any modernization program. It consists generally of two sprockets, a compound sprocket, and gear assembly.



Saco-Lowell Shops, Replacement Parts Div., Box 227, Greenville, S. C.

Do you want more data? Write ◂ or use card on page 243; list K-104

Fractional h-p integrated power units

Diehl power transmitters (Type J) are available in a variety of single-phase or polyphase ratings starting with ¼ h-p and extending to 1¾ h-p with synchronous speeds of 900, 1200, 1800, and 3600 rpm. Larger sizes to 5 h-p are also available. Motors are of totally enclosed, fan-cooled construction and are fitted with ball bearings lu-

Watson & Desmond

MAIER-FLÜGEL

With The New Maier F-Type Flyer You Get 30 - 40% Weight Increase With The Same Package Size!

The new Maier F-Type Flyer compresses the roving and winds it without friction on the bobbin. This is how you obtain from 30% to 40% weight increase with the same package size . . . and equal or better roving quality!

With the Maier F-Type Flyer, you get maximum efficiency in the processing of any type of cotton, wool or synthetic fiber, because you get longer operation of the flyer per doff . . . less ends down on roving frames and spinning frames . . . less creeling on spinning frames. And the roller needs absolutely no maintenance.

Unequalled dynamic balancing gives the F-Type Flyer a maximum displacement of center of gravity of only 0.10 mm. All flyers have the latest chrome-plated finish.

F-Type Flyers are made to fit all makes of roving frames and are adaptable to any spindle spacing.

Call your Watson & Desmond representative today. He will measure your frame, recommend the widest possible flyer and give you an estimate of the increased weight of roving you can obtain with the new Maier F-Type Flyer.

See Us At Booth 128

SOUTHERN TEXTILE EXPOSITION

OR CALL THE FOLLOWING WATSON & DESMOND REPRESENTATIVES:

IN CHARLOTTE:
J. A. Olwell
Edgar E. Ball
Marshall Gayle
EDison 3-6154

IN GASTONIA:
Richard V. McPhail
Box 1174
UNiversity 5-8631

IN WEST POINT, GA.:
H. Dorsey Lanier
Box 421
Phone 64-23363

IN GREENVILLE, S. C.:
Ray A. Norman
Box 779
CEdar 9-4279

IN GREENSBORO:
John Wyatt
Ralph Patton
Box 701
BRoadway 3-3012

More Than 40,000,000 Zinser SKF Spindles Now Serve The World's Textile Industry

THE ZINSER WARP SPINNING SPINDLE

There's a good reason why more and more mills are using Zinser Spindles with SKF inserts . . . they are performance-proven.

Because of the higher speeds and larger packages possible with Zinser Spindles, mills have increased production as much as 20%. Zinser Spindles are smooth running at highest speeds, easier to maintain and simpler to lubricate.

Sized for bobbin weights from 1 3/4 ounces up to 12 pounds . . . for speeds up to 18,000 R.P.M.

Whatever your spindle needs, investigate Zinser, manufacturers of filling spindles, warp spinning spindles, large paper package woolen spindles, high-speed twister and draw twister spindles-all with SKF inserts. Call Watson & Desmond today.

Nitrided Spinning & Twister Rings . .

THERE IS NO RING AS GOOD AS A NITRIDED RING

Spinning Rings: Reversible and non-reversible, 8 and 10 mm. curved and straight web . . . Twister Rings: Reversible and plain. Nitrided rings insure surface hardness of 67 to 69 degrees C. Rockwell . . . practically corrosion-free. Accurate profile, mirrorlike finish for longer life, fewer ends down, increased spinning and twisting production, improved yarn quality . . . Specify R & F Nitrided Rings. Chrome manganese twister rings also available for heavy traveler applications.

Call Watson & Desmond For. . .

- Shuttles ..... Watson-Williams Mfg. Co.
- Anti-Friction Top Rolls & Ny-Pre-Lon Cradles for Spinning and Roving ..... Progressive Engineering Co
- Paper Spinning Tubes & Quills ..... Textube Corporation
- SKF Roller Bearing Spindles ..... Zinser
- Maier Prima Flyers ..... Eugen Maier
- Spinning & Twister Rings ..... Reiners & Fuerst
- Wood Spools. Bobbins & Cones ..... Vermont Spool & Bobbin Co.
- Fibre Head Spools & Bobbins ..... H & P Spool Bobbin Co.
- Plastic Yarn Carriers & Spindle Adapters .... Modern Plastics Engineering Corp.
- Shuttle Fur ..... R. M. Taylor Co.
- Humidifiers ..... Walton Laboratories, Inc.
- Dye Tubes & Headless Shipping Packages ..... New England Paper Tube Co.
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- Used Machinery
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The Number Is...EDison 3-6154

TEXTILE SUPPLIES W D USED MACHINERY

Watson & Desmond INCORPORATED

P. O. BOX 1954 • CHARLOTTE, NORTH CAROLINA

bricated for life. They may be mounted on floor, wall, or ceiling or may be operated in any position. Clutch operating lever can be used on side or top. A wide range of V-belt pulleys is also offered.

Diehl Mfg. Co., Electrical Div. of the Singer Mfg. Co., Finderne Plant, Somerville, N. J.

Do you want more data? Write ◂ or use card on page 243; list K-105

High-speed, plain or micro-mesh knitters

The Santoni SBV Model D22/B machine for plain or micromesh hosiery increases knitting production over slower models by some 20 per cent—210 rpm against a former 175—to produce from four to seven dozen pairs in 24 hours, depending on style, size, and pattern.

The legless, compact unit contains a two-speed motor ranging from 21 rpm to 105 rpm, has electric stop and starter, air take down unit, and chain and nonslip belt drives. Available in 400 or 474 needles in 3¾" cylinder—single or double feed—its pyramid reinforcing device is adaptable to high-fashioned, normal, or bare.

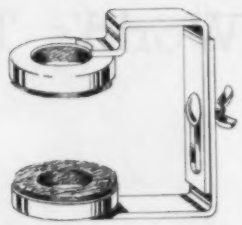
Other models falling under SBV classification include the Model DB, a single-feed, flat knit hose machine; the Model 24/B, a double feed flat knit hose machine; the Model D25B, a double feed micromesh machine; and the Model D30/B, Gambaletto single feed micromesh machine.

John Klein & Co., Inc., 385 Fifth Ave., New York 16, N. Y.

Do you want more data? Write ◂ or use card on page 243; list K-105A

Prevents sticking of spinning frame lifter rods

Spinning frame lifter rods are kept clean and lightly lubricated with Jenkins Lifter Rod Cleaners. Hence, unnecessary wear is prevented. Made of cadmium-plated steel with felt washers, the units are available in two styles — adjustable and one-piece. Installation and replacement of washers is easy.



Jenkins Metal Shops, Inc., P. O. Box 1160, Gastonia, N. C.

Do you want more data? Write ◂ or use card on page 243; list K-106

Fully automatic sweater knitter

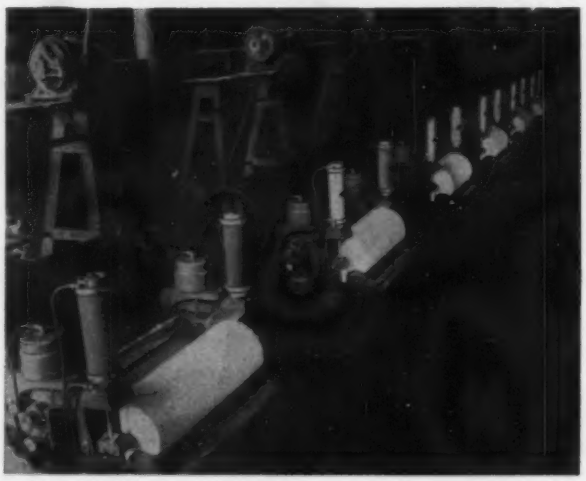
Among the features of the MVA fully automatic flat knitting machines (bulky sweaters, trimming, and fine knits) made by Walter Weiffenbach Textilmaschinenfabric, West Germany, are: (1) samples may be made on it by hand—no chain needed; (2) precision built for high speeds; (3) simple construction; (4) unlimited stitch design possibilities; (5) knoppen, tuck patterns, racking, etc.; (6) changes can be made on either side of machine;

AS FAR AS THE EYE CAN SEE . . .

More Production, Greater Profits with the LONG* Pneumatic Lap Control System

Over 400 installations emphasize that mills prefer the LONG System. They have proven that the LONG System produces longer and heavier laps, increases picker production through longer running time between doffs, delivers quality laps from both cotton and synthetic fibers with maximum safety. Only the LONG System is devised to deliver uniform pressure on laps building up on calendar stack rolls, from start-up to doffing. Equip your existing pickers with the LONG System. Send today for complete details and illustrated brochure.

*Patent No. 2,871,519
Other U. S. and Foreign Patents Pending



Installation of complete LONG Lap Control System on 17 pickers in one of the largest picker rooms in the South. Pickers shown in the foreground are 1913 model Kitsons.

LIVINGSTON & HAVEN, Inc.

P. O. BOX 808-T • • • CHARLESTON, S. C.

Visit our booth (No. 264) at the 21st SOUTHERN TEXTILE EXPOSITION in Greenville and see our full line of pneumatic and hydraulic equipment. Foreign inquiries to Platt Bros. (Sales) Ltd., Oldham, England.

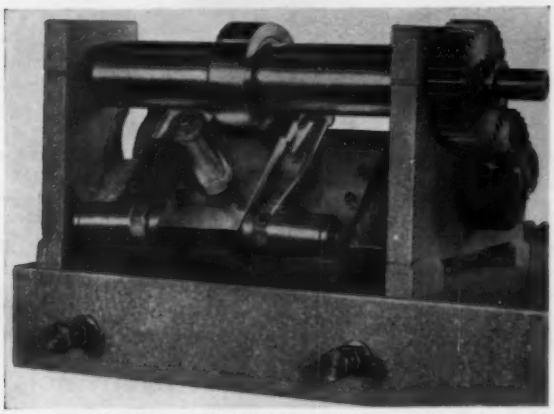
(7) high and low butt needles on front and back of machine; (8) available from 3 to 14 cut, 63" width; (9) simple dual short chain control system for all automatic motions; (10) five-stitch setting positions on front and back of machines; (11) front needle bed can be lowered; (12) attached dual speed motor; (13) adjustable take-down rollers; (14) rugged construction for durability and high output; (15) moderate price; (16) safety devices incorporated; (17) low-voltage stop motion—knot catcher, needle detection; and (18) red signal trouble light on stop motion.

Ideal Knitting Machinery Corp., 932 Madison St., Brooklyn 21, N. Y.

Do you want more data? Write ◂ or use card on page 243; list K-107

Machine changes produce superior crimp

Improvements in the Model DC crimper incorporate air cylinders on both sides of the delivery gate to insure proper fiber infeed while a third cylinder controls stuffing box pressure for the required crimp—an adjustable stop holds minimum and maximum roll openings. Double and triple tow can be run in continous operation.



Delivery end of the Turbo Model DC crimper.

Crimper rolls are four inches in diameter and are available in widths from ¼" to 6". The complete unit adjusts to accommodate any roll width. Tow is fed into the crimper at a 45° angle directly from a lead-on roll.

Turbo Machine Co., Lansdale, Pa.

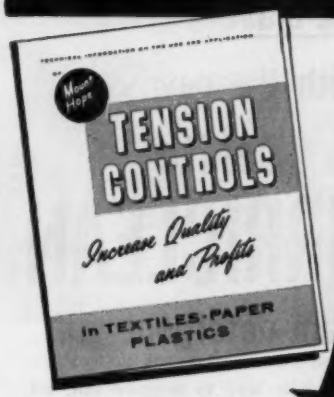
Do you want more data? Write ◂ or use card on page 243; list K-108

Feeders automatically proportion stock

With a monitor system to prevent short-weight dumps and to indicate the unit at fault, a three-foot wide #729B blending feed handles up to 600 pounds of stock per hour, accurately weighing the blends and giving up to 10 dumps per minute. A four-foot unit handles 800 pounds per hour. The units may be arranged with a transverse floor apron to provide accurately proportioned, continuous sandwich mixes.

The units are self-contained and completely enclosed, dump and reset in ½ second, are calibrated in ½-oz increments, contain frictionless tripping devices, are fitted with standard manual/automatic controls, have lint-free enclosures for all working parts, and are equipped with

HERE ARE THE ANSWERS TO ALL YOUR
TENSION CONTROL PROBLEMS!



in
1 UNWINDING OR LET-OFF
2 "IN-PROCESS"
3 WINDING OR BATCHING

FREE FOLDER GIVES ALL DATA . . .

on the
COMPLETE LINE of
Mount Hope **TENSION CONTROLS**

LEARN HOW TO BEAT TENSION PROBLEMS ON ANY WEB — ANYWHERE ON THE RANGE!

No matter what your web tension trouble may be — anywhere from let-off — in-process or batching, *on any web* — Mount Hope has a modern, proved TENSION CONTROL UNIT to eliminate it, increase quality and cut costs.

Information on how these efficient units maintain constant, uniform tension on all webs is now available in our free folder — "Mount Hope TENSION CONTROLS." It will help you to quickly reach your goal of "Quality Control" and higher profits.

MOUNT HOPE TENSION MASTER
•
AUTOMATIC TENSION CONTROL
•
TENSION INDICATOR
•
OPEN WIDTH TENSION UNIT
•
DRAW ROLLS
•
AUTOMATIC CENTER BAR BRAKE
•
AUTOMATIC CENTER BAR LET-OFF

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MOUNT HOPE MACHINERY COMPANY
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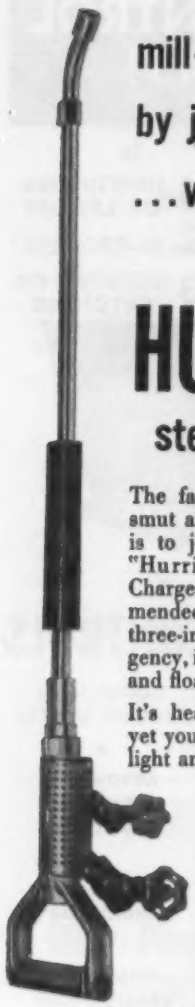
Plants at Taunton, Mass., and Charlotte, N.C.

Send me, without obligation, a copy of your new folder "Mount Hope TENSION CONTROLS" describing your line of these units, and how they solve all tension troubles.

NAME _____
FIRM _____
ADDRESS _____
CITY _____ STATE _____

NOW...

mill-wide cleaning by jet-blast ...with the new Oakite HURRICLEAN® steam-detergent gun



The fast, new way to remove lint, oil, smut and grease from textile equipment is to jet-blast it loose with the Oakite "Hurriclean" steam-detergent gun. Charge this powerful gun with recommended Oakite detergent and you get three-in-one cleaning power: heat, detergency, impact. Then twist a valve to rinse, and float off all the loosened soil.

It's heavy-duty mechanized cleaning... yet you've never handled a unit so safe, light and easy.

SAFE Steam travels in an inner, insulated tube. Outer tube conveys the cool detergent solution. Mixing takes place at the nozzle. This keeps the gun always cool to the touch, always safe.

LIGHT Weighs a mere 6¼ lbs.

EASY A twist of the tube grip changes direction of the spray. No dragging and kinking of hose lines. Cleaning 'from under' is a cinch.

You'll find that the Oakite "Hurriclean" gun brings big savings in time and money, while doing a far better cleaning job on looms, spinning frames, tenter chains, dye kettles, slasher drums, drying cylinders and other equipment, and, of course, on floors and walls.

Ask your local Oakite man to let you try out the "Hurriclean" steam-detergent gun. Or write for details to Oakite Products, Inc., 42 Rector Street, New York 6, N. Y.

OAKITE

over 50 Est. 1909 SCIENCE

years' leadership in industrial cleaning

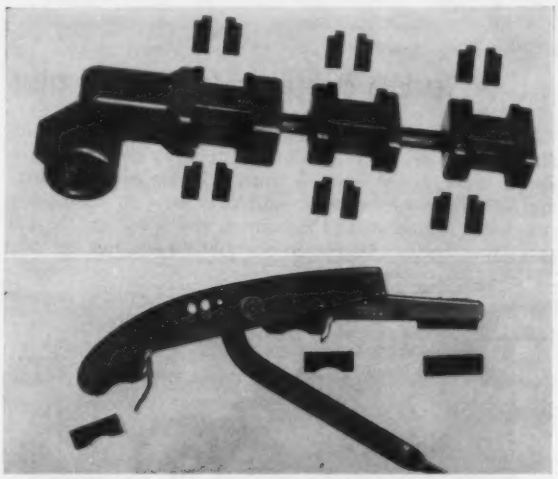
quick-operating electric spike apron clutches to reduce the load on other rotating parts.

Proctor & Schwartz, Inc., Seventh St. and Tabor Rd., Philadelphia 20, Pa.

Do you want more data? Write ◂ or use card on page 243; list K-109

Teflon replaces wooden cap bar block

Teflon bearing blocks are available for die cast cap bar nebs and for saddles. Made by Garlock, Inc., the bearings are made for spinning and fly frames to replace oil-impregnated wooden blocks. They require no



lubrication, do not cut roll necks nor arbors, reduce static build-up, do not trap or hold lint, and should give a long service life—a minimum of three to five years—and are installed by a simple hand-press method.

Dixie Bearings, Inc., 276 Memorial Dr. SW, Atlanta, Ga.

Do you want more data? Write ◂ or use card on page 243; list K-110

Builds better fly-frame packages

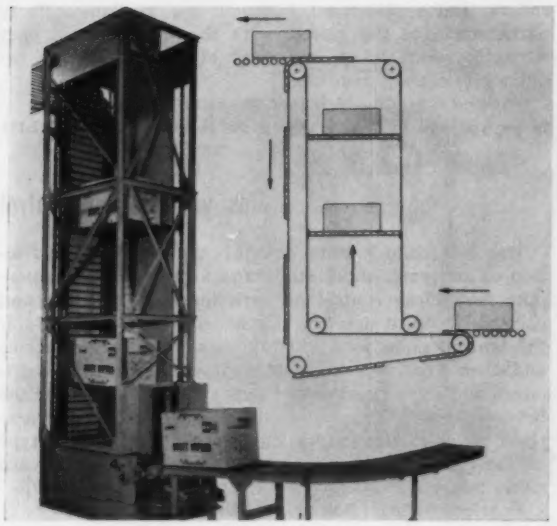
The PSC Vari-Tension winding regulator controls the increments of belt movement necessary for building packages of optimum density without causing excessive tension and end breakage. Packages gain weight and lose density variations and thus are able to withstand rough handling for faster doffing. There is no sacrifice of quality nor of performance, and the unit may be installed on a conventional frame.

Precision Gear Div., Perfecting Service Co., Charlotte, N. C.

Do you want more data? Write ◂ or use card on page 243; list K-111

Moves filling on the double

The Escaveyor, an escalator-conveyor with the continuity of a belt, may be used to lift textile stock to a higher level or to deliver it to a lower level while loading and unloading itself automatically. It actually uses less floor space than a monostrand or straight lift elevator and cuts handling time by sending its horizontal flights always in the direction the freight is to travel—



The Escaveyor

no lost time returning for another load as elevators must do.

The horizontal flights (see illustration) are so mounted that they draw their loads from a collection point into position for the lift. Then they open to form a platform during the level change only to fold again as they force their load onto a receiving conveyor and start the return trip.

Standard Conveyor Co., North St. Paul 9, Minn.

Do you want more data? Write ◂ or use card on page 243; list K-112

Portable, automatic baler

Completely automatic and portable, the Windle baler may be detached in five minutes into two separate units for easy moving. Horizontal, it is independent of mill

structure, is equipped with an automatic feed apron, controls density by pressure relay, and is available in various sizes.

Windle Engineering Co., Inc., Millbury, Mass.

Do you want more data? Write ◂ or use card on page 243; list K-113

Loom accessories that can take a beating

Polyethylene sweepsticks, lug straps, picker rod bushings (both set-screw and large-collar types), box guide

For IMPROVED and SPEEDED processing ... with REDUCED WASTE

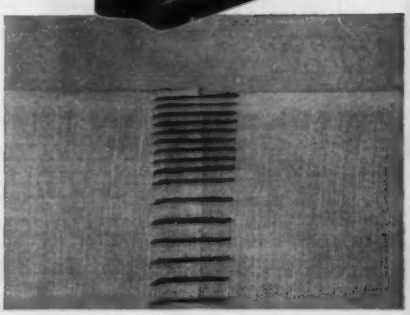
MERROW NOW OFFERS ... *IN A SINGLE MACHINE*

- ***WIDER STITCHING***

plus

- ***MULTIPLE STITCHING AT SELVAGES***

Style 60 Y3B
Butted Seamer



Some processors require a wide butted seam to eliminate "combing out" of coarse material under tension. Others, handling high count materials, need multiple stitching at the selvages for extra strength. Merrow now makes available a machine that fills **both** requirements.

The strong one thread seam (approximately 5/8" wide) is quickly and accurately formed by the high speed machine ... can be easily removed after processing. Result: improved processing ... higher production ... reduced waste.

Request complete information on this or other machines in the Merrow **complete line** of butted seamers.

TRADE MARK REG
The MERROW MACHINE COMPANY
2805 LAUREL ST. • HARTFORD, CONN. • U.S.A.

NO
selling gimmicks...

The same dependable kind of rings the industry has found *right* for the past century.

Our rings are carburized and nitrided at the same time. All over the U.S.A. they have hung up new records for long service. We have spinning and twisting rings you can't get from anybody else. Our engineering department will be glad to work with you on any problems.

Ragan Ring Co.

See Ragan Rings running at Greenville on Meadows frames in booth 812!

901 S. Main St., East Point, Ga.

SACCARDO

PAPER TUBES

for SPINNING — ROVING — TWISTING

- SYNTHETICS
- COTTON
- WOOL
- SILK

STRAIGHT or TAPERED
IMPREGNATED-BAKELIZED
PLASTIC COATED for
STEAM CONDITIONING

STEAM PROOF — COLOR PROOF

BRASS or STEEL FERRULES • NICKEL PLATED

LENKOTEX COMPANY, INC.

136 LIBERTY ST. • NEW YORK 6, N. Y.

Greenville Show — Booth 120

rollers, and replacement bumpers are available. These parts, made of the plastic with the highest of impact strength, wear slowly and raise efficiency through requiring fewer adjustments.

Garland Mfg. Co., 46 Water St., Saco, Me.

Do you want more data? Write ◂ or use card on page 243; list K-114

Aids yarn tension control

The Rothschild F-Meter provides the coefficient of friction of any yarn under study and as a consequence permits very close control of yarn tensions. Portable and easy to set up, it uses the thread tension on each side of the tension point as a starting point for its calculations and then gives easy-to-read displays of friction coefficients as they depend on: (1) tension before and after the tension device; (2) yarn speed; (3) yarn surface preparation; (4) concentration of the preparation; (5) the type of yarn guide material; and (6) the purity of the yarn guide material.

Fabrionics Corp., Box 521, Huntington, N. Y.

Do you want more data? Write ◂ or use card on page 243; list K-115

Permits high-temperature launder tests

A new Launder-Ometer, which may be operated at temperatures up to 300 F, holds up to 20 high-pressure 3" by 6" stainless-steel containers. Electric heaters quickly heat the bath (ethylene glycol may be used) to 300 F: water coils quickly cool it. Additives may be injected during the test, and conventional specimen containers may be used—one-pint stainless steel containers are available in lieu of the glass jars.

A quick-release type jar holding fixture, which may be used in existing models, holds from one to five specimen containers of the same type and is adjustable to accommodate the high-pressure metal containers, one-pint metal containers, one-pint glass jars, or the 3½" x 8" metal specimen containers and adapters.

Atlas Electric Devices Co., 4114 N. Ravenswood Ave., Chicago 13, Ill.

Do you want more data? Write ◂ or use card on page 243; list K-116

Stripper air-jets roving from bobbins

The PSC stripper uses an air blast to remove roving from as many as eight packages simultaneously. Built with pressure regulator to permit adjustment for any roving size, it handles packages from 8" x 4" to 14" x 7", removing the roving at rates up to 200 ypm and leaving the stock in a fluffy state.

A complete package, it uses a small volume of air, can be moved easily about the plant and operated by anyone with a bit of spare time, and is shipped ready to be plugged into an air line and put to work.

Precision Gear Div., Perfecting Service Co., 332 Atando Ave., Charlotte 6, N. C.

Do you want more data? Write ◆ or use card on page 243; list K-117

Yarns stay at constant comfort level

Excel floating-bottom doff trucks are designed for use around automatic spoolers, Roto-Coners, etc., where yarn must be supplied operatives at a comfortable working level. By keeping yarn supplies at the proper level, they reduce operative fatigue associated with stooping or bending.

Excel, Inc., 509 Lee Ave., Lincolnton, N. C.

Do you want more data? Write ◆ or use card on page 243; list K-118

Gas-fired burner offers high efficiency

A gas-fired infra-red burner designed specifically for low-temperature industrial processing applications permits fabric drying with a minimum of fuel consumption. Face temperature of the 4" x 18" burner screen is 1200 to 1800 F—nominal heat output is 30,000 Btu per hour per unit. Each has its built-in flame adjustment.

The units employ all-metal, crackproof Iconel radiant screens for peak heat release and longest service life. The one-piece screens are removable for easy maintenance, and the burners have cast-iron integral manifolds

Now is the Time to See

COMETSA'S

V I P Spindles at the Greenville Textile Exposition,
Annex 9, Booth 908, October 3-7, 1960

Compare these qualities and decide for yourself.

- Low Cost
- High Performance
- Proven Design
- Special types — and sizes to fit your requirements
- Runs true up to 15,000 R.P.M.
- Bolsters are interchangeable and may be removed from the frame without effecting the alignment.
- Basque Country Origin
- Factory Guaranteed
- Delivery 8-10 weeks
- Made for natural and synthetic fibers.
- 5 year lubrication cycle on sealed ball bearing spindles.

★ Three types of Spindles ★

1. Warp Spindles (roller & ball bearing spindle)
2. Filling Spindles (roller & ball bearing spindle)
3. Twister Spindles (roller & ball bearing spindle)

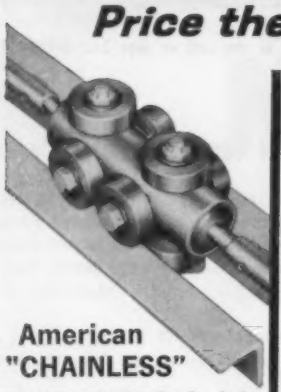
Contact your local Representative.

COMETSA SPINDLE CO.
666 Fifth Avenue
New York 21, New York

Hugh K. Smith, P. O. Box 472, West Point, Ga., Ni. 5-6204
Floyd A. New, Box 9202, Greensboro, N. C., ER. 2-1565
W. Brad Dunson, Box 321, Greenville, S. C., CE. 9-9885
Chalmers M. White, Route 6, Box 644, Charlotte, N. C., EX. 9-1764
R. Michael Turner, Box 545, Clinton, S. C., Tel.: 990

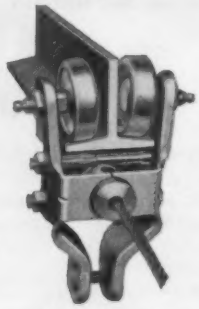
CONVEYORS?

Price these two!



American "CHAINLESS"

NO SPROCKETS! 8-wheeled trolley rolls around curves. Two, three or four-rail track is used on levels, curves or inclines, as needed. Solid steel rods with ball-socket joints connect the trolleys. Caterpillar drive is ideal for in-the-floor tow-type, pallet or overhead installations. Drive indexes precisely. For loads to 400 lbs. per hanger.



American "CABLE-WAY"

COMPACT! Smallest sprocket is only 15¼" diameter. Four trolley capacities: 80, 125, 160 and 250 lbs. per hanger. Trolley side-plates bolt over factory-positioned drive lug. Track bolts together. Conventional sprocket drive. Smooth, quiet, exceptionally low in price. Ask for Catalog CD-B.

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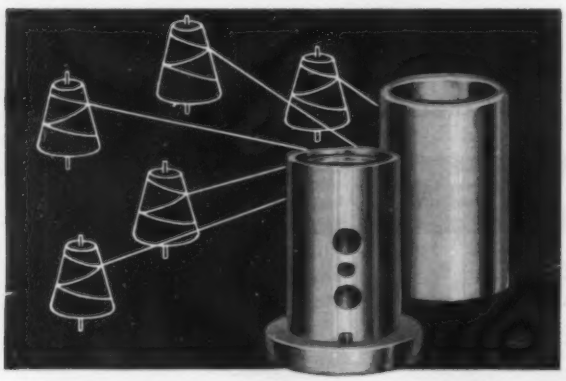


Johnson Bronze offers quick delivery on a full line of high quality Textile Replacement Bearings

Johnson Bronze can deliver a large variety of textile machinery replacement bearings from stock. These special bearings are made to the same specifications as the originals which they replace, and will give the same satisfactory service.

The fast Johnson service on bearings for all types of textile machinery, and the high quality of their products make Johnson Bronze your best source for replacement bearings. Write for free literature, requesting Folder JBL-9. Johnson Bronze, 530 S. Mill St., New Castle, Pa.

Johnson Bronze Company

New Castle, Pa.

West Coast Plant: Oakland 8, Calif.

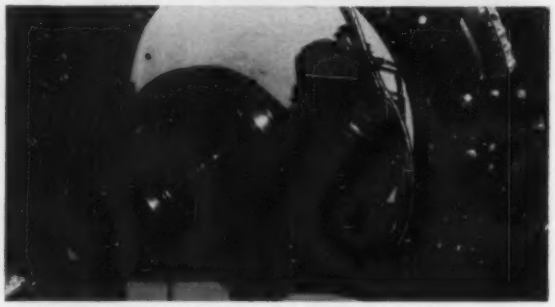
finned for aircooling to eliminate flashback. These can be assembled into lines up to 100 feet long. They light end-to-end full length from a single pilot light.

Bryant Industrial Products Corp., 17700 Miles Ave., Cleveland 28, Ohio.

Do you want more data? Write ◂ or use card on page 243; list K-119

Positive belting on card drive

The Kenyon individual cotton card drive is equipped with a PowerGrip belt to provide positive transmission. A typical drive accelerates the card to operating speed in 42 seconds and maintains the speed under a full load. It



can be supplied complete with a stripping and grinding pulley as an integral part of the clutch. This permits the motor to be used for driving the stripping rolls while the cylinder is disengaged.

William Kenyon & Sons, Ltd., Dukingfield, Cheshire, England.

Do you want more data? Write ◂ or use card on page 243; list K-120

Gill box levels two slivers simultaneously

An outstanding advantage of the La Duranitre Auto-Leveller "Autocalibreur" with twin head delivery and twin leveling heads is the fact that the machine will produce level slivers at the second operation so that the first passage can be omitted. Also, two different lots can be processed simultaneously. Designed for processing

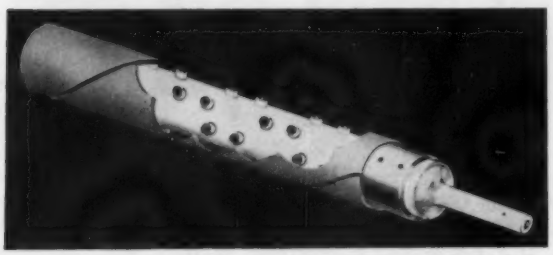
man-made fibers as well as wool, the machine produces up to 220 lb per hr, with delivery speeds ranging from 90 to 130 ypm. Specific thickness of slivers fed is measured by monitoring roller that can level variations up to 25 per cent. Feed, 2 heads with 5 ends up; draft, 7 to 10; delivery weight, 2 leveled slivers of 205 to 310 drams per 40 yd.

Stellamcor, Inc., 10 E. 43rd St., New York 17, N. Y.

Do you want more data? Write ☁ or use card on page 243; list K-121

Air shaft speeds roll mounting

An air-operated reel bar (Nimcor shafts) for mounting rolls of paper, textiles, etc., on winding, unwinding, and rewinding equipment uses multiple rows of buttons that expand under air pressure to lock the shaft to the roll core. The shaft is available with an expanding elastomeric sleeve to suit it for coreless or narrow core operations. They are custom made in diameters of ¾" to 12" and in lengths from 3' to 25' and can be engineered to handle all weight loads.



Deflated, the rolls are slipped into place. Then air pressure is applied to expand the buttons against the inside of the core or sleeve.

Nashua Industrial Machine Corp., Nashua, N. H.

Do you want more data? Write ☁ or use card on page 243; list K-122

Yarn inspector transistorized

The control unit of the Series 1000 Ultra yarn inspector has been completely transistorized to provide greater stability, longer component life, less maintenance, greater compactness, and less power consumption. The optical system has been rebuilt to eliminate the light deflector cover and to give improved electronic performance.

Foster Machine Co., Lindly Div., Westfield, Mass.

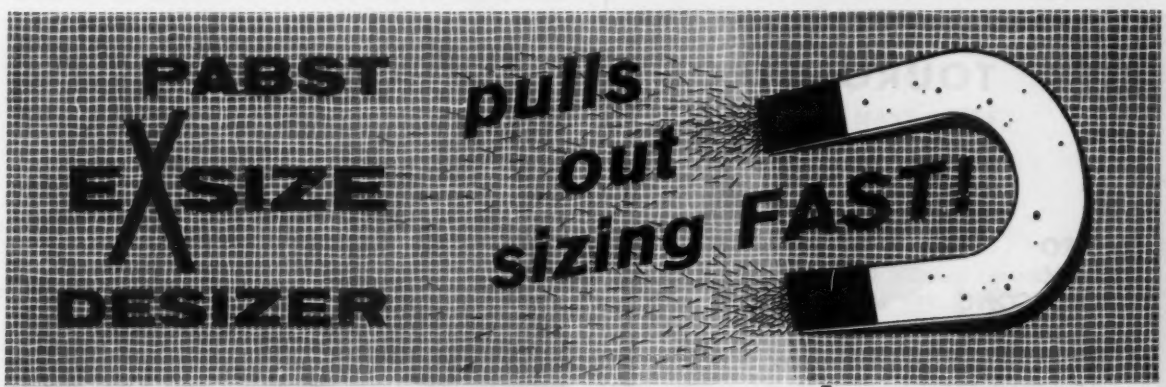
Do you want more data? Write ☁ or use card on page 243; list K-123

Spins quality yarn from sliver or roving

Either slivers or 14" x 7" roving packages supply the VY5 spinning frame. Fitted throughout with sealed antifriction bearings, and with double bearings on the top roll, the frame does not require any lubrication at all. It drafts from 20 to 650, produces yarns of outstanding quality, and will cover any range of yarn numbers required.

Three-year tests demonstrate that the twin top roll bearings do not fail (there is a small percentage of failures on single-bearing rolls) and maintain perfect alignment at all times.

Spiral-fluted rolls prevent the yarn patterning as-



Pabst Exsize takes the starch out of cotton fabrics in a hurry! That's because its built-in heat stability makes Exsize work especially well in high-speed desizing ranges. It's uniform too. Every lot is carefully controlled for uniform enzyme activity and always gives you the same safe, speedy action. Order Exsize soon for the best finishing you've ever had.

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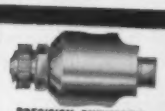

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used for:
measuring and controlling spindle speed
studying operation of ring travelers, bobbins, spindle tapes, weaving looms, combing machines, printing machines, knitting machines, winders
observing thread balloons and all rapidly moving machine parts

IN SLOW MOTION
DIRECT SPEED READING FROM CALIBRATED DIAL
200—16,000 RPM
accuracy: ±1% of scale reading

POWERFUL LIGHT BEAM FOR OBSERVATION IN BRIGHT DAYLIGHT

PACKAGE SIZE — HANDY — LIGHT WEIGHT (4 lbs.)

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GREENVILLE SHOW—BOOTH 120

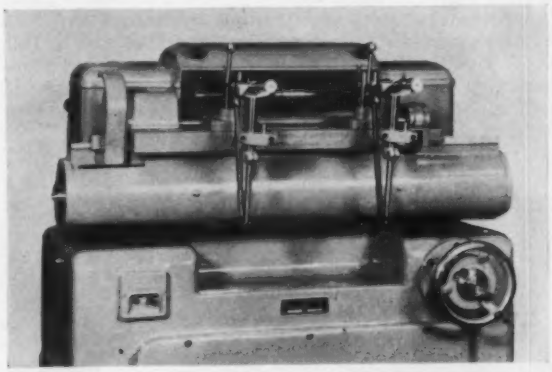
sociated with parallelization of flutes and top rolls and likewise eliminate the minute vibrations that set up "fretting oxidation" to shorten anti-friction-bearing life. See picture on p. 121.

F. A. Young Machine Co., Inc., Gastonia, N. C.

Do you want more data? Write ◂ or use card on page 243; list K-124

Centerless buffing for cots, rolls

Centerless cot grinding, as done by the SM7/400 made by Peter Wolters, buffs or grinds rolls or cots under conditions identical to their operating conditions in the plant. A companion instrument electrically examines



rolls for the slightest eccentricity, or taper. All types of cots and rolls are accommodated.

B. S. Roy & Son Co., Worcester, Mass.

Do you want more data? Write ◂ or use card on page 243; list K-125

Nip and crown check of rubber rolls simplified

With the Stowe-Woodward Nip Width Tester it is easy to test both the nips and crowns of rubber covered rolls and thus avoid many processing troubles before they start. For example, when a newly-covered roll is placed in a machine, the tester may be used to adjust loading pressure for best results with the existing crown; it also will reveal uneven loading of one or both rolls before a machine is started.

Close-up photo of aluminum foil after nip and crown test shows areas where roll pressure has depressed the embossed surface of foil.

The tester is a metal dispenser containing a roll of 6"-wide embossed aluminum foil. Pressure applied to rubber covered rolls when the foil is in place creates a

"flattened" area on the foil, thus permitting a quick visual check of the nip contact area. Sensitivity of the foil pattern provides a sharp, clear impression for measurements within one hundredth of an inch. Extreme variations are immediately discernible.

Stowe-Woodward, Inc., Newton Upper Falls 64, Mass.

Do you want more data? Write ◂ or use card on page 243; list K-126

Equipment Briefs

Floor finish takes light traffic in two hours. A two- or three-coat application of AV-6684 polyurethane floor sealer and finish on maple floors in areas of very heavy traffic will outwear two applications of the conventional sealers and finishes. Applied with a lambs-wool pad, first and second coats dry lint-free in 60 minutes each, may be opened to light traffic in two hours—to heavy traffic in eight. Highest gloss requires steel-wool buffing and application of third coat.

Minnesota Paints, Inc., 1101 3rd St., S., Minneapolis, Minn.

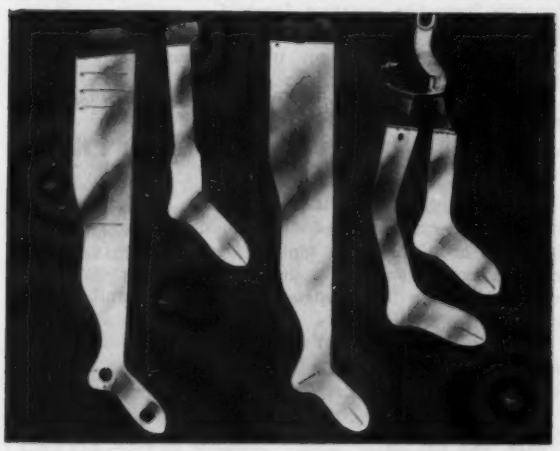
Do you want more data? Write supplier or use card on page 243; list K-201

Belting for high loads, large ratios. An all-synthetic belting called Revo is engineered for large pulley ratios and high running speeds. It may be beveled, cemented, and fused on the job to form endless units with outstanding tensile strength, and with high resistance to oils, many acids, and temperatures to approximately 200 F. It combines oriented nylon bands and nylon cloth and a urethane surface on the pulley side to form a belting that does very little slipping and almost no permanent stretching.

H. E. Crawford Mill Supply Co., High Point, N. C.

Do you want more data? Write supplier or use card on page 243; list K-202

Sheet aluminum hosiery forms. These forms for use on any equipment that will accept sheet aluminum forms are made with a tolerance of 0.015" of each size of the

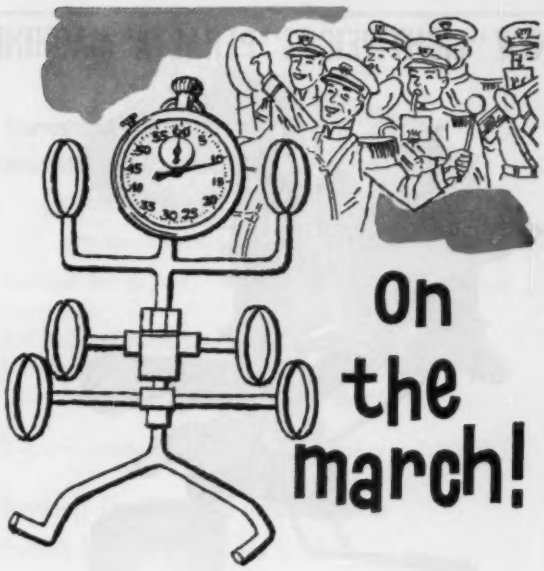


original template. Made of a special aluminum alloy, polished to a mirror finish, they contain pressed-in positive length markers.

Paramount Textile Machinery Co., 131 South Wabash, Chicago 3, Ill.

Do you want more data? Write supplier or use card on page 243; list K-203

Nickel-plated twin steel wire heddles. Available in the U. S. on short notice, the wires are light in weight to minimize loom strain, have long end loops to absorb



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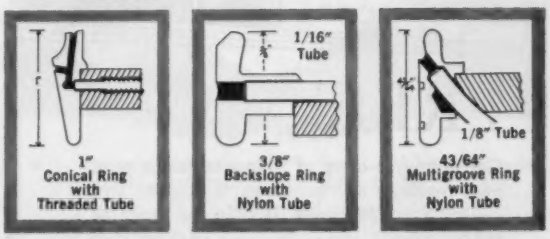
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1/16" Tube
3/8" Backslope Ring with Nylon Tube
1/8" Tube
43/64" Multigroove Ring with Nylon Tube

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Doffing Device Attachment
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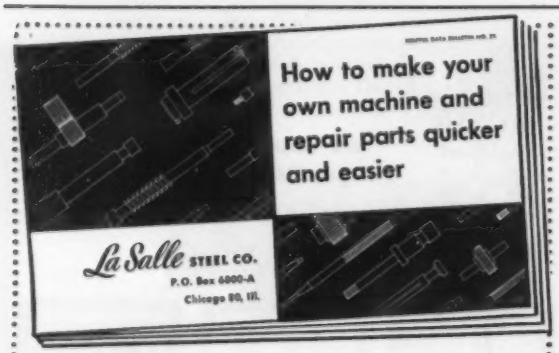

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harness shock, and are equipped with jointless inserted eyes to minimize friction on individual warp ends.

Ernest L. Frankl Associates, Inc., 151 Madison Ave., New York 22, N. Y.

Do you want more data? Write supplier or use card on page 243; list K-204

Flexible shaft assemblies "for any need." Circle Ess standard flexible shaft assemblies are offered in four cable sizes (0.130", 0.150", 0.187", and 0.250"), as a standard flexible shaft for industrial use, and as a standard panel-mounted flexible shaft with the mounting nuts as part of the shaft itself. Also, they are offered as mono- or biderectional.

F. W. Stewart Corp., 4311-13 N. Ravenswood Ave., Chicago 13, Ill.

Do you want more data? Write supplier or use card on page 243; list K-205

Floor finish takes twice "normal" wear. Superial floor finish has more than twice the abrasive resistance of the conventional phenolic and epoxy floor finishes—has excellent gloss, is easily maintained, and is made expressly for the textile industry.

The Selig Co., 342 Marietta St., NW, Atlanta 1, Ga.

Do you want more data? Write supplier or use card on page 243; list K-206

Grease with a guarantee. A multipurpose lubricant called 88 X light and cartridge grease is made for a variety of conditions of heat, moisture, mild acids, temperatures ranging from 0 F to 275 F and for ball, plain, or roller bearings and for sliding surfaces. Its versatility permits cutting grease inventories—it is guaranteed to reduce maintenance by at least 10%.

Keystone Lubricating Co., 21st & Lippincott Sts., Philadelphia 32, Pa.

Do you want more data? Write supplier or use card on page 243; list K-207

Valve features straight-through flow. A Warren Wynn lined diaphragm valve that costs approximately half as much as a comparable stainless steel unit can be operated manually, pneumatically, electrically, or hydraulically. Pressure from the operator forces the various types of diaphragms to seal off the line fluid. When the valve opens, it is raised in an upward position, creating straight-through, obstructionless flow.

Warren Engineering Co., Main St., Rte. 24, Broadway, N. J.

Do you want more data? Write supplier or use card on page 243; list K-208

Belts have synthetic friction surfaces. A polyurethane-coated belt recommended for twister use has proven performance at 80,000 rpm (spindle speeds) by operating with a smoothness and precision previously unknown. The coating has both high resistance to abrasion and a high coefficient of friction.

Extremultus, Inc., 25-11 40th St., Long Island City 1, N. Y.

Do you want more data? Write supplier or use card on page 243; list K-209

Safe, but has harsh-caustic cleaning powers. Forward will perform cleaning tasks on walls, floors, equipment, etc., normally assigned to harsh caustics, but it remains perfectly safe. Its silicate-buffered alkaline cleaning power is balanced to prevent its fading out as mop or sponge transfers dirt to the bath.

S. C. Johnson & Son, Inc., 1525 Howe St., Racine, Wis.

Do you want more data? Write supplier or use card on page 243; list K-210

Transistorized plant communications system. Telephone handset stations are push-button connected into either

the telephone-loudspeaker channel or the party-line telephone channel of the Gai-Tronics transistorized paging equipment. Once paging is completed, party-line communications may be carried on, leaving the telephone-loudspeaker channel available to others. Furthermore, conversations between two or more points may be carried on the loudspeakers.

P. C. Gault Co., 25 W. Faris Rd., Greenville, S. C.

Do you want more data? Write supplier or use card on page 243; list K-211

General-use ventilation fan. The direct drive of the Type PF ventilating fan eliminates belt maintenance and replacement and ordinary motor maintenance. Quiet, dynamically balanced, and highly efficient, it is equipped with a 14-gauge square steel mounting panel.

Ilg Electric Ventilating Co., 2850 N. Pulaski Rd., Chicago 41, Ill.

Do you want more data? Write supplier or use card on page 243; list K-212

Pencil for marking & coding resin fabrics. Completely fugitive, Wash-A-Way pencil No. 780 is made in red, blue, green, and yellow for marking cotton, silk, rayon, Dacron, resin-treated fabrics, and blends.

The Joseph Dixon Crucible Co., Jersey City 3, N. J.

Do you want more data? Write supplier or use card on page 243; list K-213

Packaged, air-operated, sliding doors. Air-operated, double horizontal sliding doors, for use at busy locations, speed traffic and assist in maintaining desired temperature and humidity. A complete package, and actuated by pull cord, push button, or other types of control switches, the combination is designed for easy installation and is tailored to fit various openings.

Clark Door Co., 515 Hunterdon St., Newark 8, N. J.

Do you want more data? Write supplier or use card on page 243; list K-214

"Short and snappy" pancake motors. The drip-proof pancake motor maintains the performance level of a standard motor of equal rating but is 54% shorter. Flange-type, it is made in ½- to 50-hp units with speeds of 1800, 1200, and 900 rpm.

The Louis-Allis Co., 427 E. Stewart St., Milwaukee 1, Wis.

Do you want more data? Write supplier or use card on page 243; list K-215

Erect these racks without tools. AIM brand heavy-duty storage racks come in various lengths and heights, are easily assembled (without tools) and dismantled, have prefabricated frames, 3" square columns, and a built-in safety load locking device that refuses to be pulled, bulled, or jarred loose—positive protection against accidental disengagement.

Acme Steel Co., Fabricated Materials Div., 135th and Perry Ave., Chicago 27, Ill.

Do you want more data? Write supplier or use card on page 243; list K-216

Metals engineered for specific end uses. Meehanite metals are engineered to produce unusually and dependably high physical properties—higher strength, more uniform machinability, better wear resistance, and better hardenability than regular grey iron. As a result, they are recommended for parts replacement where breakage and wear are excessive. Available in conveniently sized bars, bushings, and gear blanks.

Ross-Meehan Foundries, 1601 Carter St., Chattanooga 1, Tenn.

Do you want more data? Write supplier or use card on page 243; list K-217

Drives permit use of smaller V-belts. Smaller and lighter sheaves and V-belts of higher capacities at substantially lower cost cover the complete range of horse-

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power capacities available in conventional drives. With the Dyna-V line, the majority of industrial drives can be handled with ⅜" belts and with sheaves greatly reduced in width and outside diameter. The 3V (⅜") belts are designed for drives up to 50-horsepower. Larger components are used for higher-power applications.

Dodge Mfg. Corp., Mishawaka, Ind.

Do you want more data? Write supplier or use card on page 243; list K-218

Adds "power" to static eliminator bars. An air attachment for Takk static eliminator bars converts existing units to "air bars" that may be used for antistatic dust and lint removal and for area coverage up to four feet. Previous range: six inches.

The Takk Corp., Granville Rd., Box 346, Newark, N. J.

Do you want more data? Write supplier or use card on page 243; list K-219

This steel needs no heat treatment. A method of "elevated temperature drawing" produces "fatigue-proof" steel bars from which high strength machine and repair parts may be machined and which need no heat treatment. For example: "e.t.d." 180 may be used directly for shafts, axles, pins, and other parts requiring a high level of strength. Strength and hardness are uniform across the entire cross section of bar.

LaSalle Steel Co., 1412 - 15th St., Hammond, Ind.

Do you want more data? Write supplier or use card on page 243; list K-220

Casters especially developed for textiles. Available in 4", 5" or 6" diameters and in swivel or rigid models, the entire Series 33 casters have pressed-on thread guards and are made with Texite or semi-steel wheels.

Albion Industries, Inc., Albion, Mich.

Do you want more data? Write supplier or use card on page 243; list K-221

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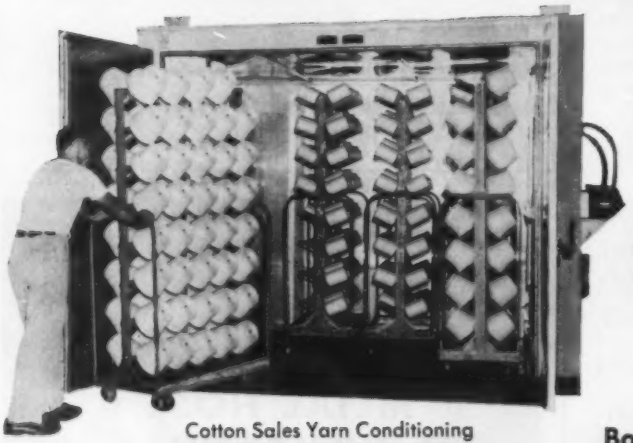
BE SURE TO SEE THE *FULLY AUTOMATIC* "H-W"® YARN CONDITIONER



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Lumatex® Pigment Colors

Lumatex is an oil in water emulsion system. Lumatex pigment colors are suitable for both dyeing and printing, with a simple addition of a proper binder.

Brilliant shades, softness of hand, ease of application as well as their outstanding fastness properties to light, washing and crocking have made Lumatex the outstanding pigment application system.

We will gladly provide technical information and assistance.

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FREE BOOKLETS

10-1 WHAT'S NEW IN RING TRAVELERS?—Booklet gives details on the new improved Victor Rocket, a long wearing, nickel plated traveler. Saco Lowell Replacement Parts Division, Greenville, S. C.

10-2 SYNCRO-RANGE DRIVES—Bulletin describes drives ranging in sizes from 2 to 15 horsepower which provide adjustable speed of synchronous induction motors. Louis Allis Company, 427 East Stewart Street, Milwaukee 1, Wisconsin.

10-3 NEW STROBOTAC—Booklet describes versatile trouble shooter and Tachometer for the textile industry. General Radio Company, West Concord, Mass.

10-4 LONG-STAPLE SPINNING—Booklet describes roving and spinning drafting with completely anti-friction elements, top and bottom. Saco-Lowell Shops, Textile Machinery Division, Easley, S. C.

10-5 AUTOMATIC BALE PLUCKING AND BLENDING—Booklet describes automatic bale pluckers combined with blending conveyors. Ernest L. Frankl Associates, 515 Madison Avenue, New York 22, New York.

10-6 FLEISSNER DRYER—Brochure gives complete details on Fleissner dryer, telling how profits may be increased through higher production and lowered cost. Saco-Lowell Shops, Textile Machinery Division, Easley, S. C.

10-7 AUTOMATIC SPOOLERS—Booklet describes type "F" Automatic Spoolers, including diagrams of operating principles, pictures, etc. Barber-Colman Company, Rockford, Illinois.

10-8 COMETSA SPINDLES—Bulletin gives details of high-precision, vibration free Cometsa spindles. Edward B. Rock, 127 E. 69th Street, New York 21, New York.

10-9 RECTILINEAR WORSTED COMB—Brochure describes feeding, working parts, delivery, and drive of Rectilinear Worsted Comb. N. Schlumberger & Cie, Guebwiler, Haut-Rhin, France.

10-10 ORTHOMAT—Booklet describes Optical Weft Straightener Control which provides automatic correction of both bowed and skewed wefts. Mount Hope Machine Company, Inc., 15 Fifth Street, Taunton, Mass.

10-11 FILTERING MERCERIZING SOLUTIONS—Brochure tells how Nerofil successfully performs the job of cleaning caustic mercerizing solutions. Nero Products Division, Great Lakes Carbon Corporation, 333 N. Michigan Avenue, Chicago 1, Illinois.

10-12 VARIABLE SPEED DRIVE—Booklet describes the RS-33 P.I.V. constant-horsepower variable speed drive. Link Belt Company, Dept. PR, Prudential Plaza, Chicago 1, Illinois.

10-13 AIR COMPRESSORS—Booklet describes over 200 models of electric and gasoline air compressors from ¼ horsepower to 20 horsepower. Lincoln Engineering Co., 4010 Goodfellow Blvd., St. Louis 20, Missouri.

10-14 SYNTHETIC BELTING—Brochure describes "Texalon", giving physical properties and characteristics and including a sample. J. E. Rhoads & Sons, Wilmington 99, Delaware.

10-15 MEEHANITE—Booklet describes bushings, gear blanks and bar stock made from Meehanite, which "bridges the gap between iron and steel". Ross-Meehan Foundries, 1601 Carter Street, Chattanooga, Tennessee.

10-16 V-BELT DRIVES—Brochure describes the advantages of "DynaV" Drives, including construction features, drive selection tables, allowable speeds, etc. Dodge Manufacturing Company, Mishawaka, Indiana.

10-17 AUTOMATIC STOP MOTION—Brochure gives complete details on single-end, single-spindle, completely automatic stop motion with great simplicity of operation. Meadows Manufacturing Company, P. O. Box 10997, Atlanta 10, Ga.

10-18 HIGH SPEED WARPER—Brochure describes high speed warper for cotton, rayon, woolen and worsted, and synthetics. Allen Company, Inc., P. O. Box 98, Acushnet Station, New Bedford, Mass.

10-19 CLEANING GUN—Pamphlet gives details on cleaning gun for soil and spot removal on finished or greige goods. Charles S. Tanner Company, P. O. Box 2115, Greenville, S. C.

10-20 PRECISION BALANCES—Bulletin describes small capacity industrial weighing balances of simple construction. Exact Weight Scale Company, 541 East Towne Street, Columbus, 15 Ohio.

10-21 TEXTILE LEATHERS—Catalog contains information and specifications on various types of textile leathers, and includes horsepower rating table for belts. Charles Bond Company, 617-623 Arch Street, Philadelphia 6, Pa.

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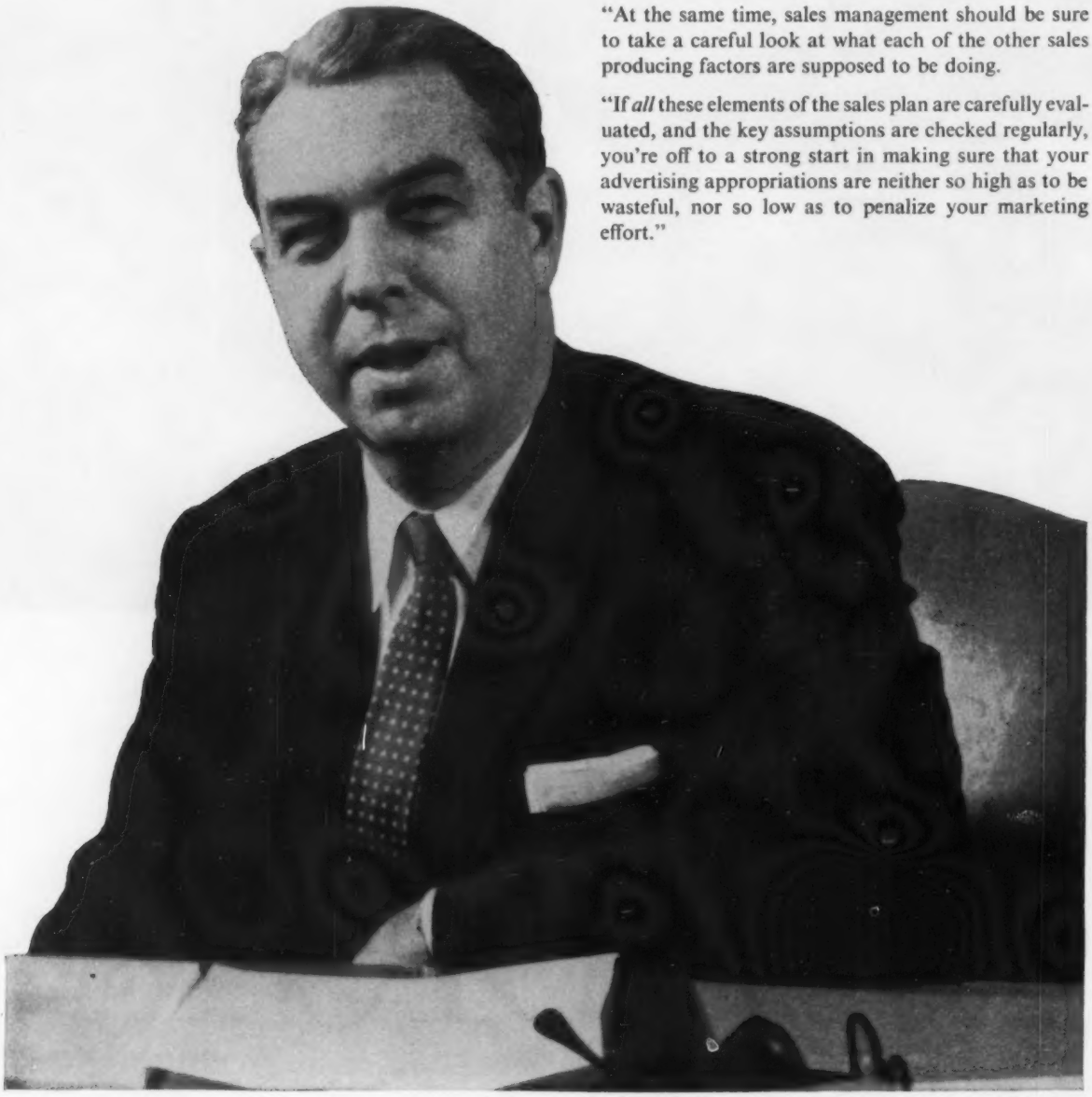

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BOOKLETS

raw stock to roving

T-101 LUMMUS PEPPER - SHAKER OPENER. Gives complete details and photographs. Aldrich Machine Works, P. O. Box 750, Atlanta, Ga.

T-102 STATIC ELIMINATION. How to eliminate static safely and inexpensively. Simco Co., 920 Walnut St., Lansdale, Pa.

T-103 CARD GRINDING INFORMATION. Care and operation of cards. B. S. Roy & Son Co., Worcester, Mass.

T-105 VERSA - MATIC DRAWING FRAME. Describes drafting elements, quality of sliver, roving and yarn possible. Saco-Lowell Shops, Textile Machinery Div., Easley, S. C.

T-106 SARGENT OPENER. Describes opener with rotary evener and stripper. C. G. Sargent's Sons Corp., Graniteville, Mass.

T-107 FEATHERTOUCH DRAFTING. How to get "highest production per frame at lowest cost." Ideal Industries, Inc., Bessemer City, N. C.

T-111 MAGNETIC IDEAS. Booklet shows uses of permanent magnetic separation equipment in opening room as well as throughout mill. Removes tramp iron, prevents fires. Eriez Mfg. Co., Erie, Pa.

T-112 ADVANTAGES OF ALDRICH PICKERS. Good technical text, comprehensive pictures. Aldrich Machine Works, P. O. Box 750, Atlanta, Ga.

T-113 NEW CONDENSER TAPE. Describes Supr-O-Tape, an impregnated fabric condenser tape. Benjamin Booth Co., Allegheny Ave. & Janney St., Philadelphia 34, Pa.

T-119 FIBER METER. Automatic weighing and blending assures quality, holds variation to 1%. James Hunter, Inc., P. O. Box 298, Mauldin, S. C.

T-120 PIN DRAFTERS. Textile job report No. 21 tells how Warner & Swasey Pin Drafters help modify jute systems for carpet yarns. Warner & Swasey Co., 5701 Carnegie Ave., Cleveland 3, Ohio.

T-121 UNIVERSAL CARD COILER. Literature describes both head and base swivel for adjustment. Includes data on 90-day free trial. McDonough Power Equipment, Inc., McDonough, Ga.

T-122 RECONDITION OPENING & CLEANING. Bulletin gives whys and wherefores of reconditioning your opening and cleaning lines. Special attention given to each machine with suggestions as to parts replacement. Saco-Lowell Shops, Replacement Parts Div., Box 327, Greenville, S. C.

T-123 COILER CONVERSIONS. Full facts on low initial cost conversion to larger coiler cans. Lists advantages, has complete description. Southern States Equipment Corp., Hampton, Ga.

T-124 CARD DRIVE. Bulletin 301-a describes simple, safe, efficient individual card drive. Southern States Equipment Corp., Hampton, Ga.

T-132 PROCTOR SUPER PICKER. Data sheet gives details of the Proctor Super Picker for use on slabs of baled cotton, or wool and synthetic blends in layers up to 12" thick. Proctor & Schwartz, Inc., 7th St. and Tabor Rd., Philadelphia 20, Pa.

T-133 ANTI-STATIC AGENT. Data sheet lists basic characteristics of liquid anti-static agent which eliminates processing difficulties with fibers due to static electricity. E. F. Houghton & Co., 303 West Lehigh Ave., Philadelphia 33, Pa.

yarn and warp making

T-201 PRODUCTS FOR SPINNING AND WEAVING. Complete line, applications, advantages shown. Dayco Corp., Textile Div., Dayton, Ohio.

T-202 NEW BOBBIN MANUAL. Complete bobbin guide. Lestershire Spool Division, National Vulcanized Fibre Co., Wilmington 99, Delaware.

T-203 SPINDLE OIL. "Gulfspin" insures against excessive wear and eliminates spindle wobble. Gulf Oil Corp., Gulf Bldg., Pittsburgh, Pa.

T-205 HIGH SPEED AUTOMATIC QUILLER. Lists advantages and dimensions of "Autocopser." Terrell Machine Co., Inc., P. O. Box 928, Charlotte, N. C.

T-208 PACKAGED SPINNING MODERNIZATION. Details on Collecto-Vac, Open-Aire Creels, Cross-Jet Cleaner, Air Conditioning. Bahnson Company, Winston-Salem, N. C.

T-209 SECTIONAL WARPER. Describes full width and sectional warpers for knitting, weaving. Robert Reiner, Inc., Weehawken, New Jersey.

T-210 CONICAL RINGS AND FLYERS. Complete details and specifications. Herr Manufacturing Co., Inc., 318 Franklin St., Buffalo 2, New York.

T-211 PRECISE WINDING MACHINE. For winding pineapple or straight cones and tubes of synthetics. Foster Machine Co., Westfield, Mass.

T-212 AUTOMATIC CLEANING EQUIPMENT. Working details and advantages of the Tri-Rail Cleaner. American MonoRail Co., 111 East 200th St., Cleveland 17, Ohio.

T-216 SPINNING FRAME CONVERSIONS. Big-package, new-frame results at half the cost. Meadows Mfg. Co., P. O. Box 10876, Station A, Atlanta, Ga.

T-217 COLLECTO-VAC. New development collects lint, fly and broken ends. The Bahnson Company, Winston-Salem, N. C.

T-219 SPINNING AND TWISTER RINGS. Complete details, pictures, price list. Whitinsville Spinning Ring Co., Whitinsville, Mass.

T-222 SUCTION CLEANING SYSTEM. Details on new Collector Unit Model C-4. Pneumafil Corp., Charlotte 8, N. C.

T-223 FACTS ABOUT YOUR FLYERS AND SPINDLES. Advantages of smooth flyer and spindle operation. Ideal Machine Shops, Bessemer City, N. C.

T-225 LAPLESS ENDLESS SPINNER. Full information available. Ton-Tex Corporation, 31 Columbus Ave., Englewood, N. J.

T-227 SPINDLE OILING MACHINE. Features and advantages noted. Wicaco Machine Corp., 4800 Stenton Ave., Wayne Junction, Philadelphia 44, Pa.

T-228 HANDY SPINNING REFERENCE. Shows traveler speeds, sizes of ring flanges. Saco-Lowell Shops, Parts Replacement Division, P. O. Box 327, Greenville, South Carolina.

T-229 UNIRAIL UPTWISTER. Higher yarn quality and better packages at faster speeds. Leesona Corp., P. O. Box 1605, Providence, R. I.

T-230 PRECISION TEXTILE WINDING. Tensions and density control for winding rubber cones. Kidde Textile Machinery Corp., Farrand St., Bloomfield, N. J.

T-231 CONE WINDER. Describes Model 102 winder, including applications. Foster Machine Co., Westfield, Mass.

T-232 SHORT CUT TO STAPLE FIBER SPINNING. Ten steps in operation of the Tow Stapler. Turbo Machine Co., Lansdale, Pa.

T-233 WEAVER'S KNOTTER. Instructions as to use, description. A. B. Carter, Inc., Gastonia, N. C.

T-234 TEXTILE ROLL COVERINGS. Describes complete line as well as other mill supplies. Armstrong Cork Co., Industrial Div., Lancaster, Pa.

T-239 LARGE PACKAGE TWISTER. Information on new anti-friction Jumbo Twister which carries a 14" bobbin with a 12" build. Meadows Mfg. Co., P. O. Box 10876, Sta. A, Atlanta, Ga.

T-241 PACEMAKER TWISTERS. Folder gives details on high production, outlines notable features. Whitin Machine Works, Whitinsville, Mass.

T-242 RING SPINNING FRAME. Folder presents description, illustrations and specifications of up-to-date Simplex ring spinning frames. Davis & Furber Machine Co., North Andover, Mass.

T-243 ANTI-FRICTION TWISTER BEARINGS. Find out how bearings helped make The Meadows Twister almost friction-free. Fafnir Bearing Company, New Britain, Conn.

T-246 BETTER BEAMS. Information on three ways to make better beams. Kidde Textile Machinery Corp., Farrand St., Bloomfield, N. J.

T-249 VARI-SPEED MOTOR PULLEY. Describes variable speed control through use of simplified three-major-part disc-assemblies with only one lubrication point. Reeves Pulley Co., Reliance Electric & Engineering Co., Columbus, Ind.

T-250 SPINNING MODERNIZATION. Booklet shows how lower costs and improved quality are obtained by spinning modernization. Roberts Company, Sanford, N. C.

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BOOKLETS

T-255 **NEW BOBBIN HOLDER.** Details on streamlined, positive latching bobbin holder. Whitehead Die Casting Co., 1140 Zonolite Rd., Atlanta, Ga.

T-256 **HUMIDIFIER PROTECTION** — Brochure tells how "Rustex" can stop rust and corrosion and prevent discolored water in your humidifying system. Odorless and completely harmless to personnel, or goods. Anderson Chemical Co., Inc., Box 1424, Macon, Georgia.

slashing—weaving—tufting

T-301 **COUNTING AND MEASURING DEVICES.** Wide range of counting devices for all types of textile machinery. Veeder-Root, Inc., Hartford, Conn.

T-302 **LOOM SUPPLIES.** Describes complete line. E. H. Jacobs Mfg. Co., P. O. Box 3096, Charlotte, N. C.

T-304 **LOOM PRODUCTION CHARTS.** Celluloid card shows yards per loom per week. Ralph E. Loper Co., Greenville, S. C.

T-306 **THE STORY OF STARCHES.** History and information on manufacture and use of starches. National Starch & Chemical Corp., 750 Third Ave., New York 17, N. Y.

T-308 **STEEL WARP BEAMS.** Beams for both broadloom and narrow fabrics. Milton Machine Works, Inc., Milton, Pa.

T-309 **PENFORD GUMS IN TEXTILES.** Describes their excellent properties for warp sizing spun yarns. Penick & Ford Ltd., Inc., 750 Third Ave., New York 17, New York.

T-312 **AIR SLASHER DRYER.** Shows construction and operating details. Proctor & Schwartz, Inc., 7th St. and Tabor Rd., Philadelphia 20, Pa.

T-313 **BUTT-TACKING SEWING MACHINE.** Describes operation, installation of single thread butt-tacking sewing machine. The Merrow Machine Co., 28 Laurel St., Hartford, Conn.

T-314 **LOOM REED BOOKLET.** Describes in detail a variety of reeds. Steel Heddle Mfg. Co., 2100 West Allegheny Ave., Philadelphia 32, Pa.

T-315 **COCKER EQUIPMENT.** Information on warp sizer, beam warper, creels, tensions, back-winders, etc. Cocker Machine & Foundry Co., Gastonia, N. C.

T-318 **FORMULAS FOR SLASHING ARNEL.** Includes also information on warping, weaving and quilling. Textile Sales Dept., Celanese Corp. of America, P. O. Box 1414, Charlotte 1, N. C.

T-319 **ECLIPSE STARCHES FOR TEXTILES.** Data sheet describes use of thin-boiling starches in the textile industry, with particular emphasis on warp sizing. Physical and chemical data included. A. E. Staley Mfg. Co., Decatur, Ill.

T-321 **COCKER SLASHERS.** Complete specifications and advantages, including allied equipment. Cocker Machine & Foundry Co., Gastonia, N. C.

T-322 **MOUNTS FOR LOOMS.** Vinyl mount eliminates need for bolts or paste. Clark, Cutler, McDermott Co., 106 W. Central St., Franklin, Mass.

T-323 **UNIFIL LOOM WINDER.** Describes new concept of filling preparation which needs no quilling area. Leesona Corp., P. O. Box 1605, Providence, R. I.

T-324 **ALIGNING LAYS.** Setting instructions for step-by-step aligning. Draper Corporation, Hopedale, Mass.

T-325 **TRAVELING LOOM CLEANER.** Advantages of the new Oscillaire loom cleaner. Parks-Cramer Co., Fitchburg, Mass.

T-326 **DRAPER REPAIR PARTS CATALOG.** Contains illustrations covering all mechanisms and construction with complete listings. Draper Corporation, Hopedale, Mass.

T-327 **BALING PRESSES.** Describes complete line of motor-driven and hydraulic baling presses. Logemann Brothers Co., 3150 West Burleigh St., Milwaukee, Wis.

T-328 **TEXTILE MACHINERY PARTS CATALOG.** Describes complete line of Dayco and Thorobred textile parts. Dayco Corp., Dayton, Ohio.

T-329 **COUNTING DEVICES.** Describes complete line of counters for every application. Trumeter Company, 38 W. 32nd St., New York 1, New York.

T-331 **STATIC BARS.** Humorously illustrates how static can be overcome. The Simco Co., 920 Walnut St., Lansdale, Pa.

T-332 **CARE OF DRAPER SHUTTLES.** Describes how longer, trouble-free service may be obtained. Draper Corporation, Hopedale, Mass.

T-336 **ONE-PIECE SIZING AGENT.** Houghto-Size CW provides low kettle cost, results in free-running warp of high breaking strength, increasing weaving efficiency. E. F. Houghton & Co., 303 West Lehigh Ave., Philadelphia 33, Pa.

T-346 **FACTS ON NON-WOVENS.** Fact file on non-wovens tells of new machinery, new methods of handling fibers, new bonding agents, etc. Curlator Corporation, Textile Div., E. Rochester, N. Y.

T-347 **NEW DRYING SYSTEM.** Describes high capacity, custom engineered drying equipment for tufted plants. Dalton Sheet Metal Co., Inc., Dalton, Ga.

T-351 **AUTOMATIC STOP MOTION.** Complete information available on automatic stop motion for Titan warp tying-in machine. Edda International Corp., 468 Fourth Ave., New York 16, N. Y.

T-353 **BACKING FOR TUFTEDS.** How to get your tufting necessities with one telephone call. Fulton Cotton Mills, P. O. Box 1736, Atlanta 1, Ga.

T-355 **NON-WOVEN FABRICS.** Booklet gives outline of nature and history of non-woven and the manufacturing techniques of today. Booklet 56-219A, Chemical Div., Goodyear Tire & Rubber Co., Akron 16, Ohio.

T-358 **LOOM SUPPLIES.** Information on rod lubricant and applicator, sponge leather bunter, picker. Garland Mfg. Co., 54 Water St., Saco, Me.

T-362 **SIZE THAT SATISFIES.** Information on getting the correct size package for your mill. Also on Bingham line of slasher rolls. Stodghill & Co., 716 Ponce de Leon Place, Atlanta, Georgia.

T-363 **RUBBER COVERED SLASHER ROLLS.** Handy booklet tells how to get longer life and better performance from rubber covered rolls. Includes data on handling, storing and grinding. Stowe-Woodward, Inc., Dept. C., 181 Oak St., Newton Upper Falls 64, Mass.

knitting

T-401 **SINGLEHEAD FULL - FASHIONED MACHINE.** Literature on request from the Wildman-Jacquard Div., Draper Corp., Hopedale, Mass.

T-403 **RASCHEL KNITTER.** Describes new Raschel-type knitting machine. Kidde Textile Machinery Corp., Inc., Farrand St., Bloomfield, N. J.

T-406 **NEEDLE OIL DOES NOT STAIN.** Details on "Gulftex 30" developed for knitting mills. Gulf Oil Corp., Gross & PRR, Pittsburg 30, Pa.

T-407 **KNITTING MACHINES.** Information on Wildman "TFS" 30" single section F-F machines and "AL" 30" diameter 32-feed "single purpose" circular interlock machine (rib type) Wildman-Jacquard Div., Draper Corp., Hopedale, Mass.

T-409 **KNIT GOODS FINISHING MACHINERY.** Data on calenders, shrinkers, curers, extractors, steamers. Tubular Textile Machinery Corp., 33-61 54th St., Woodside, N. Y.

T-410 **"READING" TYPE 60 F-F KNITTING MACHINE.** Information about the new "Reading" Type 60, 38-section automatic full-fashioned hosiery knitting machine. Write Textile Machine Works, Reading, Pa.

wet processing

T-500 **WEBB GUIDE SYSTEMS.** Folio No. EG-84 describes webb guide systems for cloth applications. G.P.E. CONTROLS, INC 240 E. Ontario St. Chicago 11, Ill.

T-501 **TUBES FOR PACKAGE DYEING.** Describes Dytex tubes for one-time use. Sonoco Products Co., Hartsville, S. C.

T-502 **FINISHING MACHINERY.** Text and photographs of complete line of machinery. Marshall and Williams Corp., 46 Baker St., Providence, R. I.

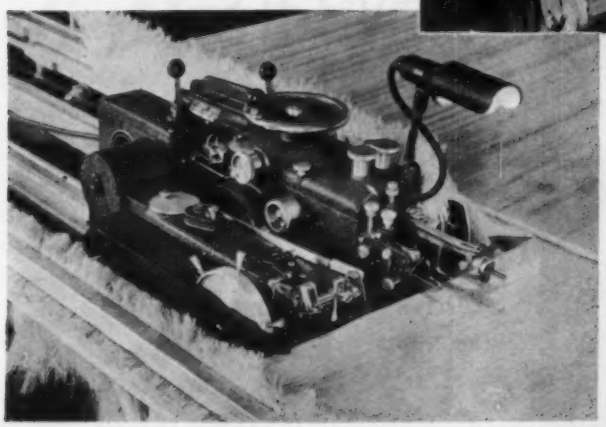
T-503 **WATER ANALYSIS.** Includes tables, conversion factors, indicators, standard solutions. Solvay Process Div., Allied Chemical Corp., 61 Broadway, New York 6, N. Y.

T-504 **UREA FORMALDEHYDE.** Literature on urea formaldehyde or U.F. concentrate-85. Dept. CUFI-29-1, Nitrogen Div., Allied Chemical Corp., 40 Rector St., New York 6, New York.

T-506 **CATIONIC SURFACE ACTIVE AGENT.** Describes Uversoft "D." Harshaw Chemical Co., 1945 East 97th St., Cleveland 6, Ohio.

T-507 **CONTINUOUS STARCH COOKER.** Booklet shows how the use of continuous cookers for starch assures accurate control, economy, low maintenance in warp sizing and finishing. Clinton Corn Processing Company, Clinton, Iowa.

THE TITAN WARP TYING MACHINE



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TITAN Warp Tyers have won world-wide recognition for maximum dependability under all operating conditions. Backed by many years of specialized technical knowledge in warp tying, mill-tested TITAN units are modern in all respects. Fabricated in stainless steel and chromium plated to eliminate all corrosion problems, all 3 TITAN models assure maximum efficiency, ease of operation, and lowest maintenance costs.

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You can depend on TITAN for superior performance on all counts, including prompt spare parts and unexcelled engineering service. PRODUCTION-WISE or SERVICE-WISE you can't beat TITAN — ask the mill which has one.

You can see the latest model TITANS in actual operation at the SOUTHERN TEXTILE EXPOSITION, Greenville, S. C., October 3-7, Booth #129

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For seventy-four years the Southern textile industry has relied upon Standard Oil lubricants to do a dependable protective job with maximum economy.

During this long array of years, we have pioneered in offering new lubricants to meet changing machinery, because the combined facilities for testing and research behind Standard Oil lubricants are unequaled. These facilities are available to tackle your problems whether they are "run of the mine" or involve a new or unusual lubricant application.

STANDARD OIL LUBRICANTS

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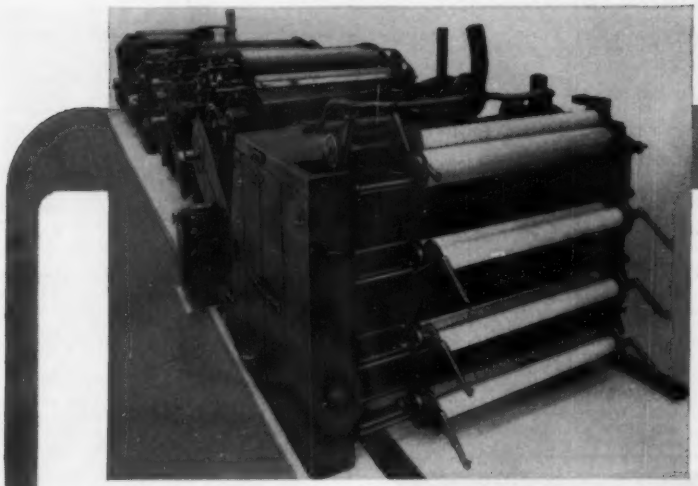


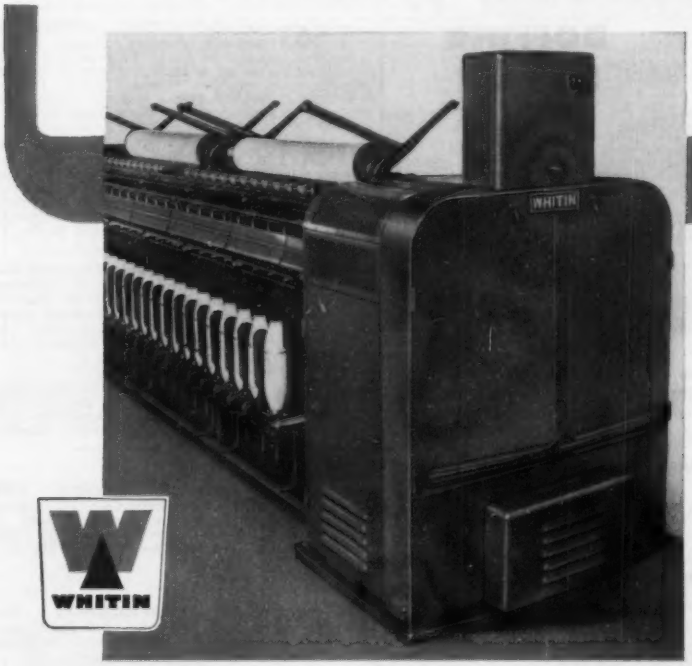
The Whitin Model M Card

- New Automatic Card Feed
- New Tape Condenser
- Variable Speed Fancy Drive
- ATF Variable Speed and V Belt Drive for Feed Table
- V Belt Drive for Strippers, Breast, Doffer, Fancy and Condenser
- Antifriction Bearings throughout
- * P.I.V. Drives on Breaker Feed Rolls and Finisher Doffer

A "Natural Combination" for greater profit

The new Model M Card and the famous FLEX-SPIN Model L2 Wool Spinning Frame are two new "stars" for your production team. The Model M Card in either 60" — 72" or 84" widths has tremendous productive capacity. The FLEX-SPIN with its 16" traverse produces packages carrying up to 20 oz. of soft knitting yarn or up to 32 oz., or even higher, on weaving yarns.

Together, these two great new machines form a feature-filled "natural combination" that's got what it takes — and just what you need — not only to *boost* your production and *maintain* quality, but also to *cut* your operational costs through improved machine efficiency and work simplification.



Whitin Flex-Spin® "L2" Wool Spinning Frame

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- Balloon Control Rings
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- Side Shaft Twister Head Drive
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- Variable Speed Drum Drive
- * Pneumatic Waste Removal
- * Automatic Lubrication
- * Vari-Speed Drive

*Optional Equipment

For complete information ask your Whitin representative or write direct to us.

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BOOKLETS

T-543 INDUSTRIAL BRUSHES. Features use on shears, printing machines. M. W. Jenkins' Sons, Inc., 444 Pompton Ave., Cedar Grove, N. J.

T-544 WASTE HEAT RECOVERY. Describes system of waste heat recovery from polluted water. Ludell Mfg. Company, 8200 West State Street, Milwaukee, Wis.

T-545 WASHERS FOR SCOURING, BLEACHING, ACIDIFYING. Describes high capacity, continuous process washers. C. G. Sargent's Sons Corp., Graniteville, Mass.

T-546 NAPHTHOL FOR LIGHTFAST BROWNS. Booklet describes new, straight, non-substantive naphthol. Naphthol As-BN, for the continuous naphtholation of cotton and rayon piece goods in the dyeing of economical, fast-to-light browns. General Dyestuff Co., 435 Hudson St., New York 14, New York.

T-547 SOFTENER LUBRICANT, NAPPING AID. Technical information available on softener, lubricant and napping aid for natural and synthetic fibers, yarns and fabrics. Nopco Chemical Co., Harrison, N. J.

T-548 HANDBOOK ON METHOCEL. Gives technical information and use data on family of methylecellulose ethers called Methocel. Organic Chemicals Sales, The Dow Chemical Co., Midland, Mich.

The BEST is Always a BARGAIN

Lane Style 20 DOFFING BASKET

For a long-wearing doffing basket to fit the individual requirements of your mill insist on the Lane Style 20. The tough, snag-proof body, built over a strong, resilient frame, gives low-cost, dependable service because of these exclusive Lane features:

- Light, strong frame of special spring steel provides resistance to permanent bending.
- Longitudinal frames are embedded full length in cross-braced shoes of close-grain hard wood.
- Lane duck, woven to exacting requirements is sewn into tough body with completely smooth inside surfaces.
- Specially tanned binding leather and short, tight stitches of long-staple cotton thread for extra wear. 1111A

To be SURE of the best,
INSIST ON *LANE Style 20 Canvas Doffing Basket*
SEE US AT BOOTH 212
GREENVILLE SHOW

Lane

THE LANE BASKET

W. T. LANE & BROS., INC. Poughkeepsie, New York

T-550 POLYVINYL ACETATE EMULSION. Bulletin contains a description of Celanese emulsions and cites advantages of Celanese polyvinyl acetate emulsions in textile finishing. Celanese Chemical Co., 180 Madison Ave., New York 16, N. Y.

T-554 INSTRUMENT CATALOG. Complete information on industrial instrument accessories and supplies. Includes specifications, parts numbers and prices. Catalog 500, Foxboro Co., Foxboro, Mass.

T-556 HUNTER DYEING EQUIPMENT. Describes fully with diagrams Hunter Model A Dye Becks, Hunter No/Lap Reels, Model S Dye Kettles, Open Width Dye Kettles, Sample Dye Kettles. James Hunter Machine Co., North Adams, Mass.

T-557 HIGH ACTIVITY CATALYST. Technical bulletin describes new catalyst AC-6 which provides increased activity, excellent bath life, minimum odor formation, etc. Monsanto Chemical Co., Plastics Div., Springfield, Mass.

T-558 CATIONIC DYE LEVELER. Bulletin TX-34 gives new information on dye leveler for acid colors on nylon tricot and wool through use of Nopco 1425-B. Nopco Chemical Co., Textile Chemicals Div., Harrison, N. J.

T-559 FLOW CONTROL Complete information on largest selection of values to handle flow control requirements. William Powell Co., 2525 Spring Grove Ave., Cincinnati 22, Ohio.

T-561 PUMP POURABLE PASTES. Bulletin tells how Moyno pumps can pump any textile liquid that can be forced through a pipe, even if highly viscous or corrosive. Robbins & Myers, Inc., Springfield, Ohio.

T-563 POLYETHYLENE FINISHING AGENT. Booklet contains information needed to adopt Emulsifiable A-C polyethylene as a finishing agent to any particular process. Semet-Solvay Petrochemical Div., Allied Chemical Corp., 5th Floor T, Rector Street, New York 6, N. Y.

T-564 HYDROGEN PEROXIDE BLEACHING. Booklet discusses advantages, operating details and savings in chemical costs of Activated Hydrogen Peroxide Bleaching Process for Cotton Solvay Process Div., Allied Chemical Corp., 61 Broadway, New York 6, N. Y.

T-566 ETHYLEX GUMS. Brochure describes properties of hydroxy ethyl ether derivatives of corn starch. Applications of these noncongealing gums in warp sizing and finishing covered. A. E. Staley Mfg. Co., Box 151 Decatur, Ill.

T-570 CARPET DRYERS. Details, pictures, drawings on driven roll, conveyor, and tenter types. Andrews and Goodrich Div., 336 Adams St., Boston Dorchester, Mass.

T-572 DYEING MACHINERY FOR EVERY PURPOSE. Illustrated literature available on complete line of automatically controlled machinery. Gaston County Dyeing Machine Co., Stanley, N. C.

T-576 YARN PREPARATION. Describes products for yarn preparation, printing, finishing. Polymer Industries, Springdale, Conn.

T-577 STAINLESS DRY CANS. Information on stainless steel, 75 psi, reverse dished, head dry cans. Can be furnished Teflon-coated if desired. Sims Metal Works, West Point, Ga.

T-579 AUTOMATIC GUIDING EQUIPMENT. Catalog shows various types of automatic guiding equipment for accurate cloth guiding. Fife Mfg. Co., Inc., P. O. Box 9815, Oklahoma City, Okla.

Success needs no introduction . . . Lockwood Greene offers the cotton mill owner 127 years of cotton mill design. Whether your needs are the construction of a new plant, the renovation of present properties, or the enlarging of existing facilities, call Lockwood Greene for a fully integrated service—complete architectural, structural, mechanical and electrical design staffs in all offices.

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There are more McDonough large coilers in use than any other make. Try one in your mill without obligation and learn why.

McDONOUGH POWER EQUIPMENT, INC.
McDonough, Georgia, U.S.A.

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Trucks, tanks, vats, dye buckets, batch containers.

Special containers include dye box on casters, spinning doff boxes, conditioning boxes, dye buckets and batch containers in 15, 20, 25, 30, 40, 50 and 55 gallon sizes. Prices, literature upon request.

CAROLINA FIBERGLASS PRODUCTS CO.
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Carded and Combed
COTTONS and SLIVERS
for
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BOOKLETS

T-609 PROCESSING NYLON STAPLE. Data sheet describes method of processing Du Pont 42 Nylon Staple in blends with cotton. Covers complete operation through sizing. Bulletin N-93, E. I. du Pont de Nemours & Co., Inc. Wilmington, Del.

laboratory

T-701 TESTING INSTRUMENTS. Descriptions of 37 instruments for testing textiles. Custom Scientific Instruments, Inc., 341 Devon St., Kearny, N. J.

T-703 SHADOGRAPH WEIGHING DEVICES. Pictures and information on various types of scales. Exact Weight Scale Co., Columbus 8, Ohio.

T-705 STROBOTAC. Measures speed of rotating, reciprocating or other cyclic motions. General Radio Co., West Concord, Mass.

T-706 YARN COUNT SCALE. Data sheet tells how direct-reading instrument provides fast, accurate method of determining yarn number. Exact Weight Scale Co., Columbus 8, Ohio.

T-712 AUTOMATIC MOISTURE CONTROL. Booklet tells how Hunter Electro-Psychrometers are used in measuring percentage of moisture in all classes of textiles, whether yarns or fabrics. Hunter Controls, Inc., Div., James Hunter Machine Co., North Adams, Mass.

services for management

T-801 FACTORING SERVICE. Details on advantages of factoring, including information on general banking and pension plans. Trust Company of Georgia, Atlanta, Ga.

T-805 PROFIT THROUGH FACTORING. Brochure gives facts on the use of factoring as a modern plan for developing sound business growth and added profits. Walter E. Heller & Co., Dept. TI-2, 105 W. Adams St., Chicago 90, Ill.

T-807 GROUP INSURANCE. Information on how textile group insurance can insure the happiness of your employees and make for a better running mill. Provident Life and Accident Insurance Co., Group Dept., Chattanooga, Tenn.

T-808 FACTORING. Complete details on services offered as mill factors. L. F. Dommerich, 271 Madison Ave., New York, N. Y.

T-810 THE WONALANCET WAY is the title of an editorial booklet published five times a year dealing with current problems. Write Wonalancet Company, 128 Burke St., Nashua, N. H.

T-812 BEECHCRAFTS FOR 1960. Booklet available from Southern Airways Company shows how Beechcraft executive airplanes can save executives time and money. Write Southern Airways Co., P. O. Box 718, Atlanta, Ga.

T-819 ORGANIZED LUBRICATION PAYS. Planning book entitled "Management Practices that Control Costs via Organized Lubrication" shows how to effect savings in five areas of plant operation. Available from Texaco, Inc., 135 E. 42nd St., New York 17, N. Y.

T-821 INVENTORY CONTROL. How a daily report of inventory condition mechanically producted on existing business machines showed a net direct payroll saving of more than 10,000 a year. Administrative Methods Dept., Werner Textile Consultants, 1430 Broadway, New York, N. Y.

plant operation

T-902 BELT LACING EQUIPMENT. Includes prices, specifications, etc. Clipper Belt Lacer Co., Grand Rapids, Michigan.

T-903 "MOTOR SELECTOR." How to select a-c motors for specific application. Bulletin B-2103. Reliance Electric & Engineering Co., 24701 Euclid Ave., Cleveland 17, Ohio.

T-904 GEARMOTORS, MOTORGEARS, AND FLUID DRIVES. Catalog supplies complete information on double, triple, and quardruple reduction gearmotors and motorgears. Electrofluid and fluid drives are also explained. Link-Belt Company, Dept. PR, Prudential Plaza, Chicago 1, Illinois.

T-907 WRAP UP LINT PROBLEMS. Automatic lint filter removes lint from air, winds it into disposable roll. Bulletin 234, American Air Filter Co., 275 Central Ave., Louisville 8, Ky.

T-908 TEXTILE MOTORS. Bulletin describes compete line of textile motors. Diehl Mfg. Co., Finderne Plant, Somerville, N. J.

T-909 COMPRESSORS. WB two-stage water-cooled. Space-saving units require modest foundation up to 125 psi and 1150 cfm displacement. Bulletin WB-10. Gardner-Denver Company, Quincy, Illinois.

T-910 MODERN LUBRICATION METHODS. A report to management tells how modern lubrication methods can help save thousands of dollars in three major economic areas of textile plant management. Describes twelve operating advantages of automatic lubrication systems. Lincoln Engineering Co., 4010 Goodfellow Blvd., St. Louis 20, Mo.

T-911 LEATHER BELTING. Selection, installation, proper maintenance. Atlanta Belting Co., 508-510 Whitehall St., S. W., Atlanta, Ga.

T-912 STORY OF NYLON BRISTLE. Tells of discovery and production, with special attention to "Tynex," a form of nylon ideal for use in brushes. M. W. Jenkins' Sons, Inc., 444 Pompton Ave., Cedar Grove, N. J.

T-913 "ONE-SHOT" LUBRICATORS. Bulletin describes wide field of application for one-shot lubricators on machines requiring closely controlled but infrequent oil feed. Bijur Lubricating Corporation, Rochelle Park, N. J.

T-914 INDUSTRIAL GREASES. Describes multi-purpose lithium soap industrial greases. Sinclair Refining Co., 600 Fifth Ave., New York, New York.

T-917 BLOWERS AND EXHAUSTERS. Full description, including detailed drawings. Buffalo Forge Co., 490 Broadway, Buffalo 5, N. Y.

T-918 PAINT STRIPPING BOOKLET. Explains simplified method of stripping paint. Oakite Products, Inc., 22 Thames St., New York 6, New York.

T-921 CATALOG OF NEEDLE BEARINGS. Design, application for five types of needle bearings. The Torrington Co., Torrington, Conn.

T-924 BALL BEARINGS FOR TEXTILE MACHINERY. Bearings for all phases of textile processing. The Fafnir Bearing Co., New Britain, Conn.

T-925 LUBRICATION OF BEARINGS. Helpful list of do's and don't to prolong bearing life. New York & New Jersey Lubricant Co., 292 Madison Ave., New York 17, New York.

T-931 NEW V-BELT DRIVES. Bulletin contains information on selection and operation of V-belt drives. Covers all types of V-belt drives. Dodge Mfg. Corp., Mishawaka, Ind.

T-932 SMOOTH ACCELERATION, DECELERATION. Describes eddy-current equipment for smooth, stepless acceleration and deceleration. Eaton Mfg. Co., 3307 14th Ave., Kenosha, Wis.

T-933 CATECHISM OF ELECTRIC MACHINERY. Booklet contains complete technical treatise on various electrical machines. Electrical terms defined. Fairbanks, Morse & Co., Fairbanks-Morse Bldg., Chicago 5, Illinois.

T-937 V-BELTS. Tells how raw materials and finished belts are tested and inspected. Quality control and experimental production covered. Booklet 5-51107, Dept. 794, Goodyear Tire & Rubber Co., Akron 16, Ohio.

T-938 EMERGENCY CHEMICAL CLEANING—Booklet tells how rust, scale and other deposits may be removed from heat exchange equipment, regardless of intricacy. Anderson Chemical Co., Inc., Box 1424, Macon, Georgia.

T-939 BOILER FEEDWATER TREATMENT. Bulletin describes BRAXON & FLAKO internal automatic boiler feedwater treatment and services of trained service engineers in eliminating the problems of scales, sludge, corrosion, etc. Anderson Chemical Co., Inc., P. O. Box 1424, Macon, Ga.

materials handling

T-1005 TRAMRAIL ENGINEERING AND APPLICATION. Data on how Tramrail equipment can cut handling costs. Cleveland Tramrail Div., Cleveland Crane and Engineering Co., 1036 East 289th St., Wickliffe, Ohio.

T-1007 MATERIALS HANDLING FOR TEXTILES. Shows how fibre trucks can increase efficiency, protect products. National Vulcanized Fibre Co., Wilmington 99, Del.

T-1013 TRUCKS DOFF, STORE, BECOME SPOOLER TRAY. Brochure tells how mobile boxes are being used as doff boxes, storage boxes, and spooler trays on Barber-Colman spooler. Fisher Mfg. Co., Hartwell, Ga.

T-1014 CARPET CORES, STORAGE TUBES. Literature on simplified storage and better cores for rugs. Sonoco Products Co., Hartsville, S. C.

T-1015 OVERHEAD CONVEYOR. Catalog features "Cable-Way" Overhead Conveyor which has low-cost, ease of installation, quiet operation and long life. Conveyor Division, The American MonoRail Co., Fourth and Franklin Sts., Tipp City, Ohio.

T-1016 GUIDE TO BETTER CLOSURES. For use as a guide for the evaluation of methods currently in use to effect economy and better production in the closure of fiber board boxes. Acme Steel Products Div., Acme Steel Co., 135th and Perry Ave., Chicago, Ill.

T-1020 AUTOMATIC WRAPPING. Tells how automatic packaging increases the sales appeal of textile products. Saves labor and materials and adds tamper-proof product protection. Write Hayssen Mfg. Co., Sheboygan, Wis.

T-1021 TUBES, BOBBINS, PIRNS. Information on world renowned yarn carriers, reliable as to stability, dimensions, weight. Emil Adolff (U. S. A. agents: Textube Corp., 695 Summer St., Stamford, Conn.).

T-1022 STRONG CORES. Data on lightweight, quality tubes and cores for textiles. Star Paper Tube, Inc., Rock Hill, S. C.

T-1023 MATERIALS HANDLING. Describes lightweight, durable, smooth products. Spaulding Fibre Co., Inc., Dover, New Hampshire.

T-1024 CONDITIONING TRUCK. Details on all-aluminum, non-rusting conditioning truck. Excel, Inc., Lincolnton, N. C.

...GATEWAY TO SAFETY FROM TRAMP METAL

"Piles of Grief" that could have been prevented with the RCA Metal Detector!

Textile mills frequently report tremendous losses caused by tramp metal. Don't let such a "nightmare" threaten your production profits! Automatically, the RCA Metal Detector specially designed for textile mills, finds hidden metal particles of all types—both magnetic and non-magnetic—even though they are woven or knit into the cloth. And, to be detected, the metal needn't be any bigger than the dot at the end of this sentence.

Used on strip material traveling at speeds from 15 to 1000 ft. per min., with full inspection sensitivity, the RCA Electronic Metal Detector can be arranged to sound an alarm, and/or stop the traveling material. It can pay for itself quickly, many times over through savings in product, decreased downtime, and longer life of costly machinery.

Find out today how the RCA Metal Detector can save you money. Write for latest literature, RCA, Dept. M-271, Building 15-1, Camden, N.J.

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The Most Trusted Name in Electronics

RADIO CORPORATION OF AMERICA

RCA ELECTRONIC METAL DETECTOR

SUPPLIER NOTES

(from page 62)

dustrial and specialty chemicals in western New York, western Pennsylvania, and southern Ontario.

Robert N. Ecsedy has joined **New York & New Jersey Lubricant Co., Inc.,** as sales representative in Connecticut and southeastern New York state.

Mr. Ecsedy
N. Y. & N. J. Lubricant

Mr. Glenn
Saco-Lowell

Mr. Zalkind
Saco-Lowell

Mr. Molnar
Saco-Lowell

A. Albert Molnar, service coordinator at the Easley, S. C., plant, has been transferred to the Atlanta, Ga., sales territory of **Saco-Lowell Shops,** as a sales engineer. Benjamin J. Zalkind has been named to succeed Mr. Molnar, and will also be responsible for the customer demonstration room. Joe M. Glenn has been appointed sales engineer and will work out of the Charlotte, N. C. district sales office. * * * Orders have been received for Model 57 combers, SJ-3H spinning frames, high-speed Versa-Matic drawing, 18" x 42" card coilers, plus miscellaneous opening and picking equipment, to be installed in the Liberty plant of Woodside Mills. Additional spinning frames will be installed at the Norris plant.

Singer Manufacturing Co. has acquired the stock and tufting machinery of **Cobble Bros. Machinery Co., Inc.,** and Cobble Bros. Sales Co., Inc., Chattanooga, Tenn.

Peter A. Wilson has been appointed sales representative for **Stanley Steel Strapping,** division of The Stanley Works.

R. B. Huey has joined the polyester products department of **The Goodyear Tire & Rubber Co.** as senior sales engineer. * * * W. R. King has been appointed sales engineer in the coatings department.

E. Haines Gregg has been elected executive vice-president and treasurer of **A. B. Carter, Inc.** O. L. Peach has been named secretary and assistant treasurer.

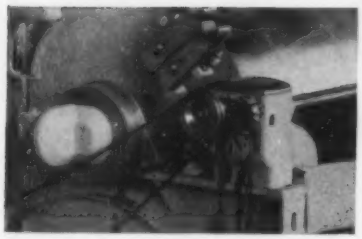
Bernard Conti has been appointed local textile industries representative in the New York area for **Minneapolis-Honeywell Regulator Co.**

Thomas H. Mariner has been appointed southern regional sales representative of crystal products for **Linde Company,** division of **Union Carbide Corp.** Mr. Mariner will give special emphasis to the textile field. Crystals produced by Linde—principally synthetic sapphire with a hardness next to diamond—are used for long-wearing thread guides.

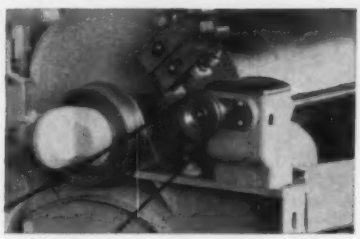
Continued on page 260

NON-FLUID OIL

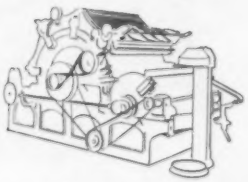
TRADE MARK REGISTERED



Ordinary oil drips and spatters



NON-FLUID OIL stays where applied



When bearing wear puts card Doffer and Top Flats out of alignment, uneven sliver results. Ordinary oil and thin grease cannot prevent bearing wear because they do not stay in bearings, but drip and spatter onto goods in process.

NON-FLUID OIL adheres to bearing surfaces — lubricates and protects them *until it is completely consumed.*

In comb boxes of cards, NON-FLUID OIL prevents heating and minimizes wear. It outlasts even the best grade of ordinary oil 4 to 6 times. Because NON-FLUID OIL is dripless, it will not damage card clothing and cotton. This means less expense and increased production.

Seven out of ten mills now use NON-FLUID OIL in their card rooms. Write for Bulletin T-5 and free testing sample.

Visit our Booth No. 109 at 21st Southern Textile Exposition—October 3rd-7th.

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NON-FLUID OIL is not the name of a general class of lubricants, but is a specific product of our manufacture. So-called grease imitations of NON-FLUID OIL often prove dangerous and costly to use.

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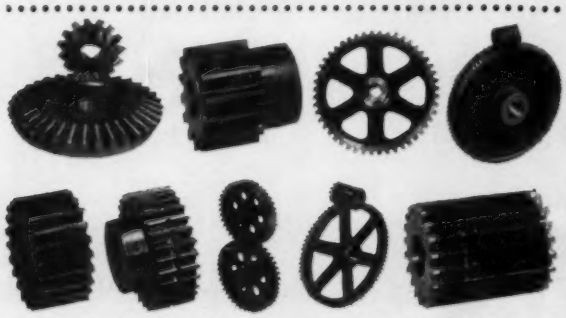

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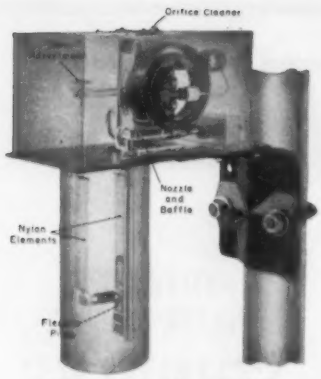
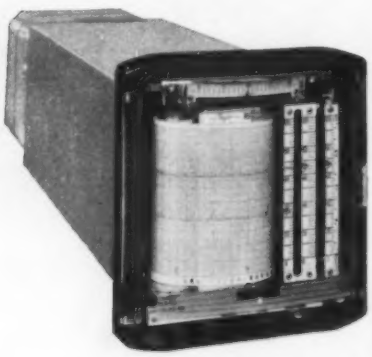
GREENVILLE SHOW—BOOTH 120

Taylor

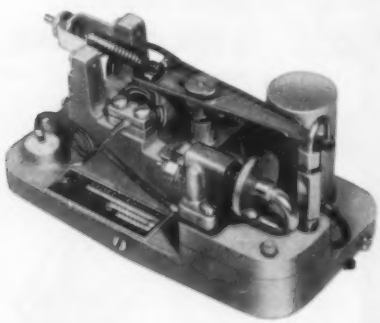


Phantom View of Room Model

No. 207T Relative Humidity Transmitter. A non-indicating, pneumatic, motion-balance transmitter. Permits direct reading in receiving instrument. Simple, dependable, good repeatability. 3-15 psi output signal. **Bulletin 98338.**

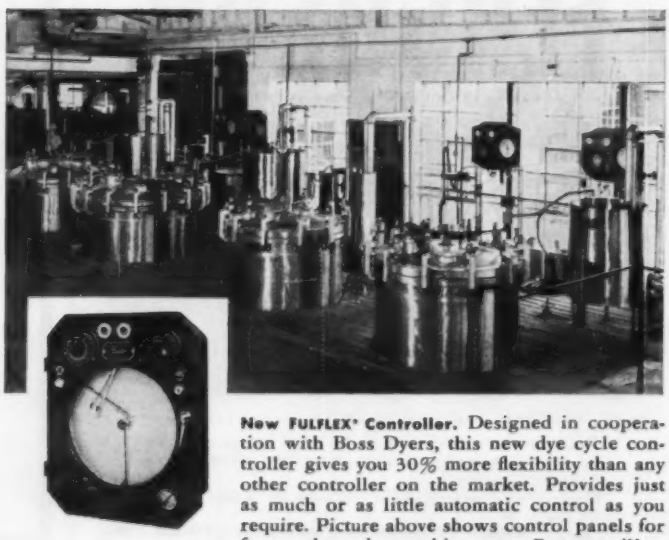


No. 90J TRANSCOPE® Pneumatic Recorder. The finest operator's tool yet developed for modern miniature-instrument panels. No other recorder puts so many features in so little panel space. Receives 1, 2 or 3 3-15 psi signals. **Bulletin 98286.**



SENSAIRE® Pneumatic Temperature Transmitter. For limits of minus 30°F. to plus 1200°F. Range spans, 50°, 100°, 200°, and 400°F. Sturdy, compact, force-balance, mercury-filled system, temperature compensated. 3-15 psi output signal. **Bulletin 98293.**

New CARD-O-TIMER® Batch Process Controller. A punch-card timer that makes every phase of a batch process cycle completely automatic. Saves trial-and-error settings. Permits absolute uniformity of product. Saves operator time. Shown here on a Dolly Washer application at a well-known Southern mill.



New FULFLEX® Controller. Designed in cooperation with Boss Dyers, this new dye cycle controller gives you 30% more flexibility than any other controller on the market. Provides just as much or as little automatic control as you require. Picture above shows control panels for four package dye machines at an Eastern mill.

Taylor Instruments

Quality Controls

. . . YOUR INVESTMENT IN THE FUTURE!

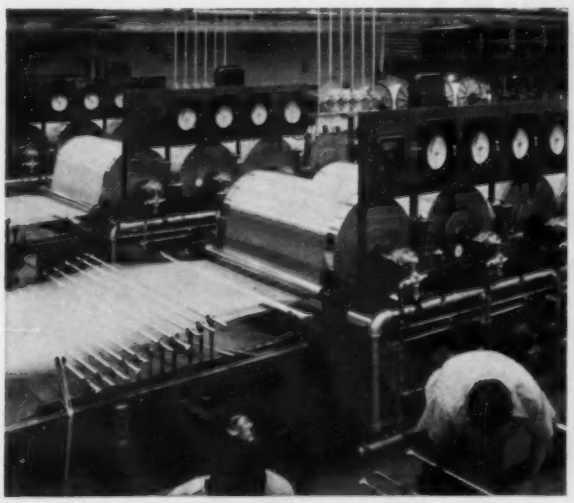
If you're in the market for instrumentation, or are likely to be in the forseeable future, come visit the Taylor booth at the 21st Southern Textile Exposition Show. See the instruments shown here, and many more . . . all designed to help you maintain quality and reduce costs.

Taylor has been building a reputation for dependable, accurate control systems for the Textile Industry since 1919. Equally important to you, Taylor instruments are designed to last. The famous FULSCOPE* line, for 20 years the standard of accuracy, is a fine example of the obsolescence-free reliability that is an inherent feature of Taylor instrumentation.

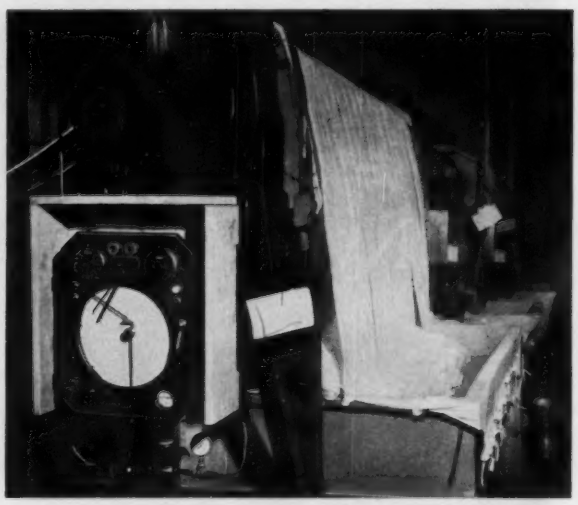
* * *

If you cannot visit the show, ask your Taylor Field Engineer about these instruments or systems. Or write Taylor Instrument Companies, Rochester, New York, or Toronto, Ontario.

SEE US AT THE 21st SOUTHERN TEXTILE EXPOSITION — BOOTH 450



Taylor Control System for high-speed slashing increases weave room efficiency.



FULFLEX Controller helps a North Eastern mill produce top quality piece dyeing.

*Trade-Mark

MEAN ACCURACY FIRST

SUPPLIER NOTES

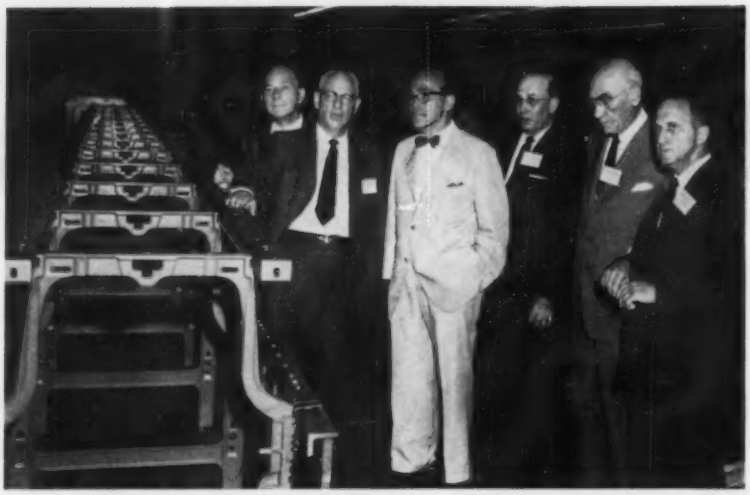
(from page 256)

Paul Paulsen has been appointed vice-president of manufacturing and engineering for **Paramount Textile Machinery Co.**

Erwin Herbert has been appointed sales representative for **Edward J. McBride Co., Inc.** Mr. Herbert will call on the trade in the New England and Pennsylvania area.

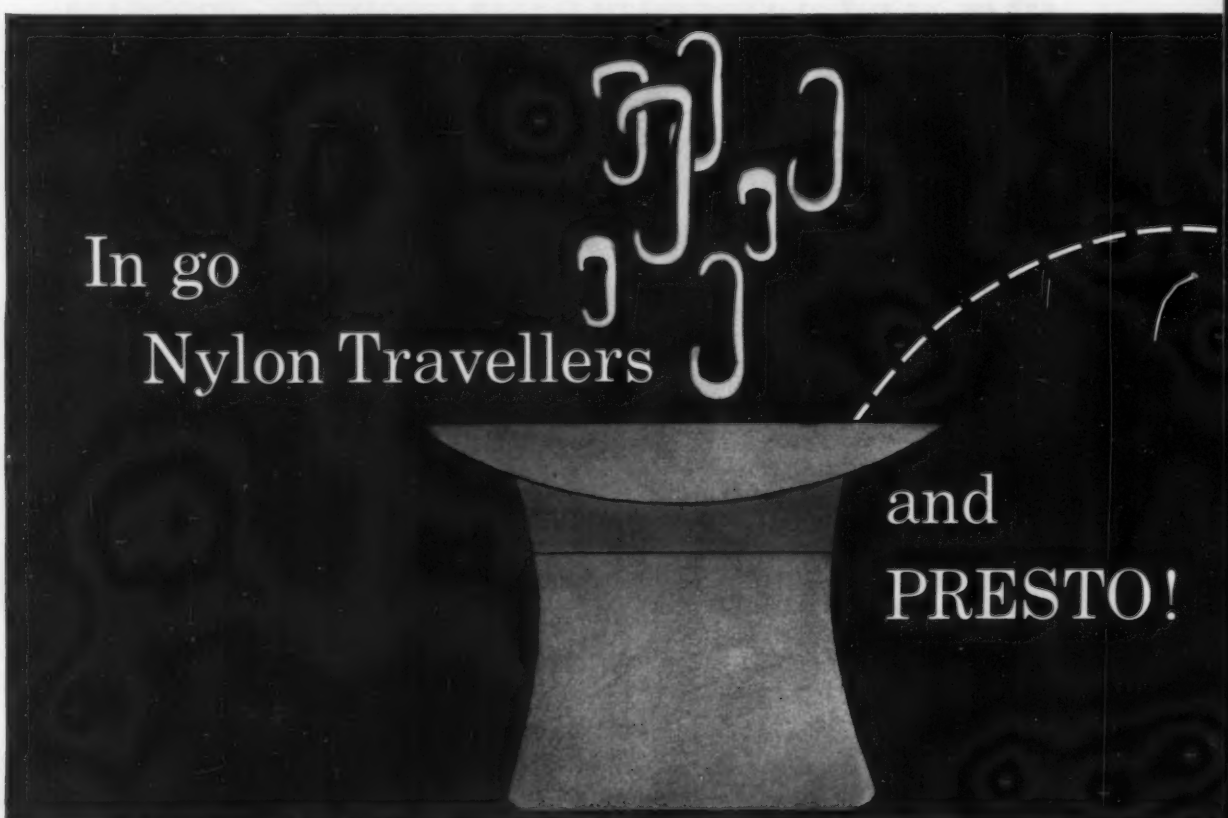
The Wilhelm Gmohling & Co. of Stadeln, West Germany, has announced the appointment of **Tatem Sales Co.** as their United States sales and engineering representatives.

An additional pilot plant has been installed at **Wica Chemicals, Inc.** Innovations in the basic pilot design incorporate unique methods of control to assure flexibility in the engineering approach. Mechanical modifications and experimental polymerization units can be moved quickly and efficiently into the system.



A majority stock interest in **Saco-Lowell Shops** has been purchased by **Maremont Automotive Products, Inc.,** of Chicago. Above, Maremont officials are shown through the Easley, S. C., plant of the Saco-Lowell Textile Machinery Division; l-r, Howard E. Wolfson, board chairman of Maremont; Henry Jewell, manager of Saco-Lowell's Easley plant; Arnold H. Maremont, Maremont's president; Royden Walters, executive vice-president and general manager, Saco-Lowell; David F. Edwards, board chairman, Saco-Lowell; and Jerome M. Comar, executive vice-president and treasurer, Maremont. Mr. Maremont has stressed that there will be no integration of Maremont and Saco-Lowell facilities, and that Saco-Lowell's personnel and policies will continue unchanged.

Subject to the approval of the board of directors of both companies, **International Latex Corp.** of Dover, Delaware, has purchased **Southern Latex Corp.** According to W. O. Heinze, President of International Corp., Southern Latex will operate under the direction of its president, D. C. Cochran.



S. T. (Wally) Walz has been appointed southeastern region manager of the **Square D Company.** Mr. Walz will direct the manufacturing operations of the firm's Atlanta assembly plant as well as head-up all southeastern marketing activities. Leonard Murrans has been named sales manager, reporting to Mr. Walz.

Richard K. Whitehead, Jr., has been elected president of **Whitehead Die Casting Co.** J. M. McDonald has been named vice-president. * * * An additional 5,000 sq ft of space has been acquired by the company for manufacturing purposes.

Frank P. Fields has joined the sales staff of **Arnold, Hoffman & Co., Inc.** Mr. Fields will operate from the sales office in Charlotte, N. C.

Pennsalt Chemicals Corp. has announced the establishment of a new Atlanta sales region for the industrial chemicals division. The new office is located in the recently completed plant in Hapeville, Ga. Robert W. Wurst, former manager of the southeastern district office, has been named regional manager.

Mr. Whitehead
Whitehead Die Casting

Mr. Fields
Arnold-Hoffman

Mr. Wurst
Pennsalt

Mr. Walz
Square D

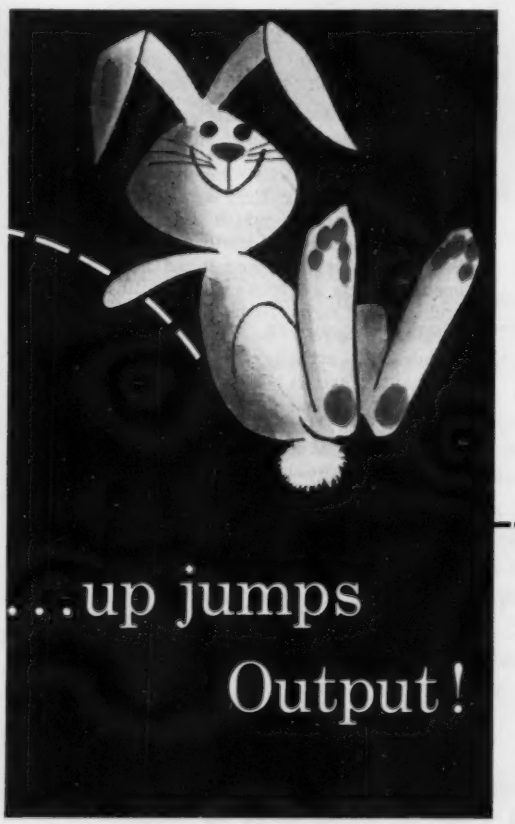
Mr. Crumpton
Holt Assoc.

Mr. West
Holt Assoc.

Mr. Dunn
Holt Assoc.

Mr. Murrans
Square D

Charles H. Crumpton, W. Wayne West, and Charles M. Dunn have joined the sales staff of **Holt Associates, Inc.,** successor company to R. E. L. Holt, Jr., and Assoc. Mr. Crumpton will contact customers in South Carolina from his headquarters in Lancaster. Mr. West will be headquartered in Greensboro and will cover the North Carolina and Virginia areas. Mr. Dunn will call on customers in Gaston county and surrounding areas from his headquarters in Gastonia.



Magic? No. But you *will* be amazed at the increase in your twisting room output when you put in Coats & Clark's Nylon Travellers.

The explanation: 20 years of experience in the design, engineering, application, and production of the Nylon Traveller—originally developed in Coats & Clark mills.

The result: Nylon Travellers that reduce staining, increase efficiency, improve twisting room performance, increase speed and quality—and cut costs.

Want to increase your twisting room output? Our sales engineers, who are experts in Traveller application, will be happy to help you—in your own mill. Call today, or mail the coupon for further information.

COATS & CLARK INC.

COATS & CLARK INC.
Traveller Division, Dept. T10
1292 McCarter Highway, Newark, N. J.

☐ Please send me Nylon Traveller Catalog ☐ Please have your sales-engineer call

*Name*_____

*Mill Name*_____

*Address*_____

*City*_____ *Zone*_____ *State*_____

Cold wave chemicals No. 1 cause of consumer complaints on textiles

■ NO SIGNIFICANT changes have taken place in the over-all textile damage complaint picture, according to the third annual report of the textile analysis department of the National Institute of Drycleaning.

Consumers, drycleaners, and textile manufacturers each account for essentially the same ratio of damage causes as was shown in 1958. These were: Consumer—38.7%; Fabric—36.7%; Drycleaner—19%; Unknown—3.4%; and Garment Construction—2.2%. Taken altogether, the data reflect a remarkably consistent pattern of complaint incidence in all categories.

The total number of problems examined in 1959 was 21,920, an increase of 540. The volume of physical damage cases dropped slightly to 6,525, whereas dye or design damage cases rose to 6,749 to just barely reverse the position of these major categories over the preceding period.

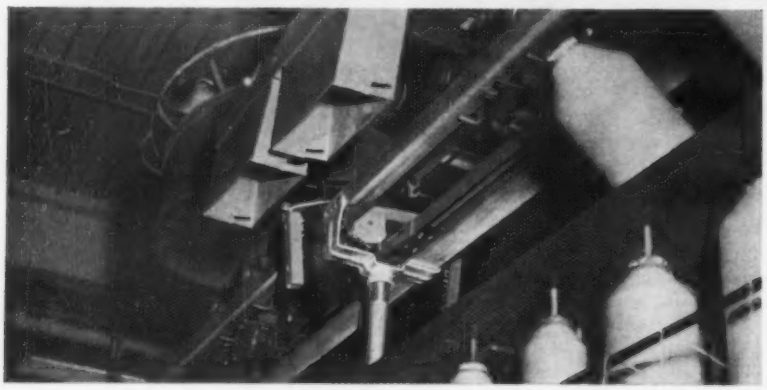
Dimensional change problems were nearly static at 1,684 cases, and only a slight increase was noted in the 4,525 stain damage problems handled. A gain of 16 per cent in the number of finish damage cases investigated is accounted for largely by miscellaneous increases in the various damage types listed as drycleaner and fabric caused. In the former, stiffness of drycleaned, plastic coated fabrics showed an increase, as did the number of fur-like pile and velvet distortion cases which are listed as finish problems. Chafing caused by improper spotting methods also rose in number.

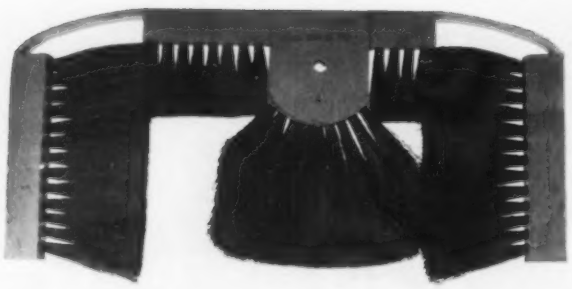
Among the finish problems attributed to the fabric itself, an increase occurred in the number of complaints resulting from the effects of water on water sensitive finishes.

New Problems Listed. A new section was added to list the problems which made their first appearance in this period or which began to show a significant upturn during the year. Most of these items have been subjects of technical bulletins and special news releases.

"Heat stains" on Dacron/wool blends are actually the result of fiber shrinkage in cross dyed blends, according to the report. The uncolored Dacron fibers, as a result of heat conditions present in underpressing operations, cause them to recede into the yarn and expose more of the dyed wool, it was explained. The effect is a "stain" appearance which occurs in manufacture or alterations but which often escapes notice until critical examination of the garment by the consumer after drycleaning.

Another interesting problem was seen in the severely matted condition of acetate quilted house coats which was traced to the use of a polyvinyl acetate bonding agent in preparation of the quilting bat. Use of this agent is not recommended by Celanese





TRAVELING TRACK BRUSH ASSEMBLY

This traveling track brush assembly #7327 for overhead cleaners is proving very useful to many mills. It saves troublesome cleaning of tracks and prevents downtime on traveling cleaners.

See this brush and many other textile brushes in our booth #420-21 at the Greenville Show. Also ask about custom made brushes for any particular applications you have in mind.

STICKING ROD TROUBLE?

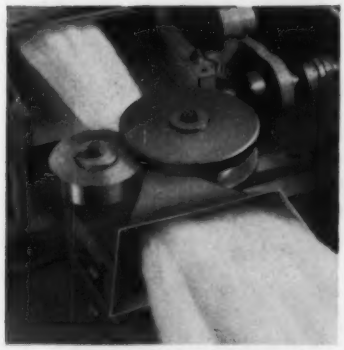
See the new, easily attached lifting rod brushes on display at the Greenville Show.

ATLANTA BRUSH COMPANY

P. O. BOX 1358 ATLANTA 1, GA. TELEPHONE JA 4-4586

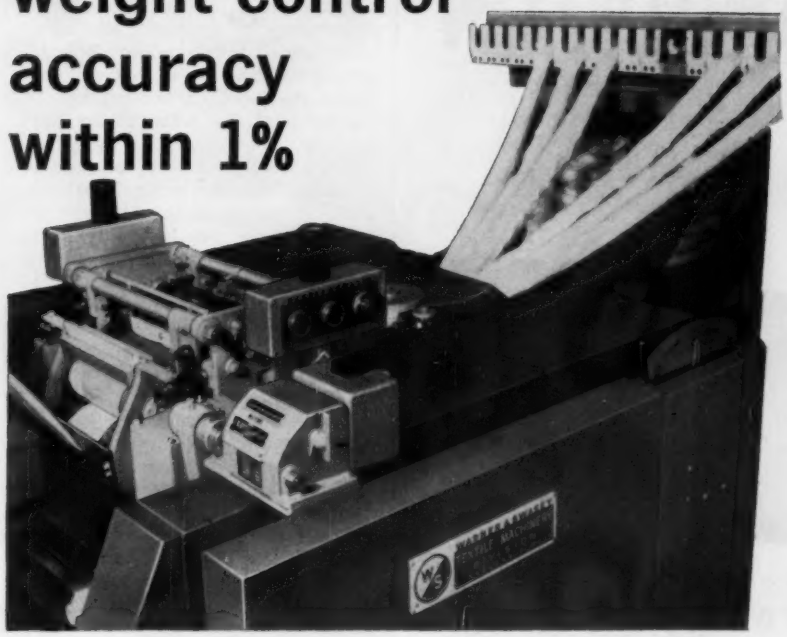
NEW WARNER & SWASEY SERVO-DRAFTER

provides weight control accuracy within 1%



Measuring rolls, *acting as a "sensing device", detect minute variations in weight of entering stock. These variations are automatically transmitted to a rotating memory wheel.*

Memory Wheel *introduces a time delay in machine response, allowing entering stock to travel from measuring rolls to draft rolls, and indicates changes in faller bars speeds.*



This new single head, single delivery Servo Drafter Intersecting Draw Frame has proven that it will produce higher quality yarns by maintaining consistent yard-for-yard sliver weight.

Extensive tests in various leading mills indicate that you can expect weight control accuracy within 1%. In a single draft, the machine can correct infeed weight variations of ± 25% in wools, synthetics or blends. Calibration of the servo control during stock change-over is simple and can be done while the machine is running.

The new machine, which operates at a mean speed of 1500 D.P.M. retains all of the time-tested features of the Warner & Swasey Pin Drafter®, utilizes a combination hydraulic and mechanical system for simple maintenance and long-term operating dependability. It takes the same floor space as previous models.

For complete facts on how this machine will fit into your blending, precombing, top making and drawing room operations, get in touch with our nearest sales office.

® Reg. U. S. Pat. Off.

You can produce it better, faster, for less... with a Warner & Swasey

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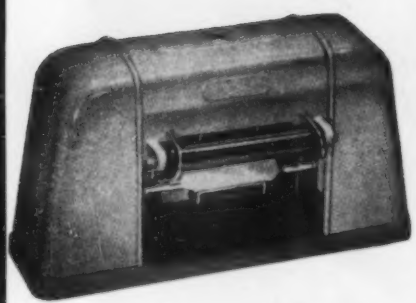
In these highly competitive times, you should investigate the

ABINGTON

CARD ROOM DEVICE



. . . which replaces calender rolls and increases cotton card production up to 20% without loss of quality.

- LOW IN PRICE
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Corp. Complaints of delamination during drycleaning of a rubber coating on poplin in car coats made in Hong Kong also gained in volume during the period.

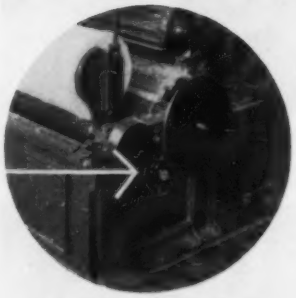
Cold Wave Chemicals and Pigment Prints. The careless use of cold wave chemicals continues to be the largest single cause of damage, followed very closely by complaints of color loss in pigment prints. The third most common cause of complaint is the deteriorating effect of sunlight on curtains and draperies, causing rips and tears to occur when processed in drycleaning. A closely allied problem is the tenderizing effect of certain dyes on cotton and rayon when exposed to sunlight. The resulting formation of oxycellulose causes the fabric to become torn in the areas of the color during drycleaning.

Other causes of physical damage to fabric include moth attack on wool. However, of the 512 cases of insect damage, 146 involved fabrics other than wool. Research on the vulnerability of non-wool fabrics to moth larvae attack has shown that severe damage may be inflicted on most any fabric, except glass, when protein type stains are present during periods of storage. The fibers are ingested by the larvae in their feeding upon the stain. For this same reason wool blends are often more severely damaged than 100% wool fabrics.

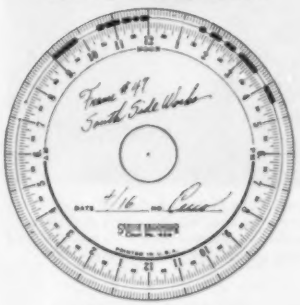
Under the shrinkage classification in the Fabric Defect group, a high percentage of this item is shown to involve wool and wool/Orlon jersey garments. Chief Analyst W. Clay Hardin has estimated the ratio of printed jersey to plain shade goods at 60-40, in an attempt to point up the type of jersey mainly involved. The question whether this kind of shrinkage is the result of fabric processing or faulty plant practice has been under discussion for some time with the Jersey Institute. It is agreed that certain very definite precautions must be taken in steam finishing jersey knit goods, and the general practice among drycleaners is to guard against more than absolute minimums of steaming. But the development of specific instructions on the handling of jersey in drycleaning has not been forthcoming because of difficulties encountered in defining these precautions instructionally. Until the issue is resolved, therefore, the inclusion of this problem in the Fabric Defect group is open to question. It is to be hoped that the problem can be given a more positive classification in the next report.

HERE'S A TIME CLOCK

LOOMS AND CARDS



CAN PUNCH!



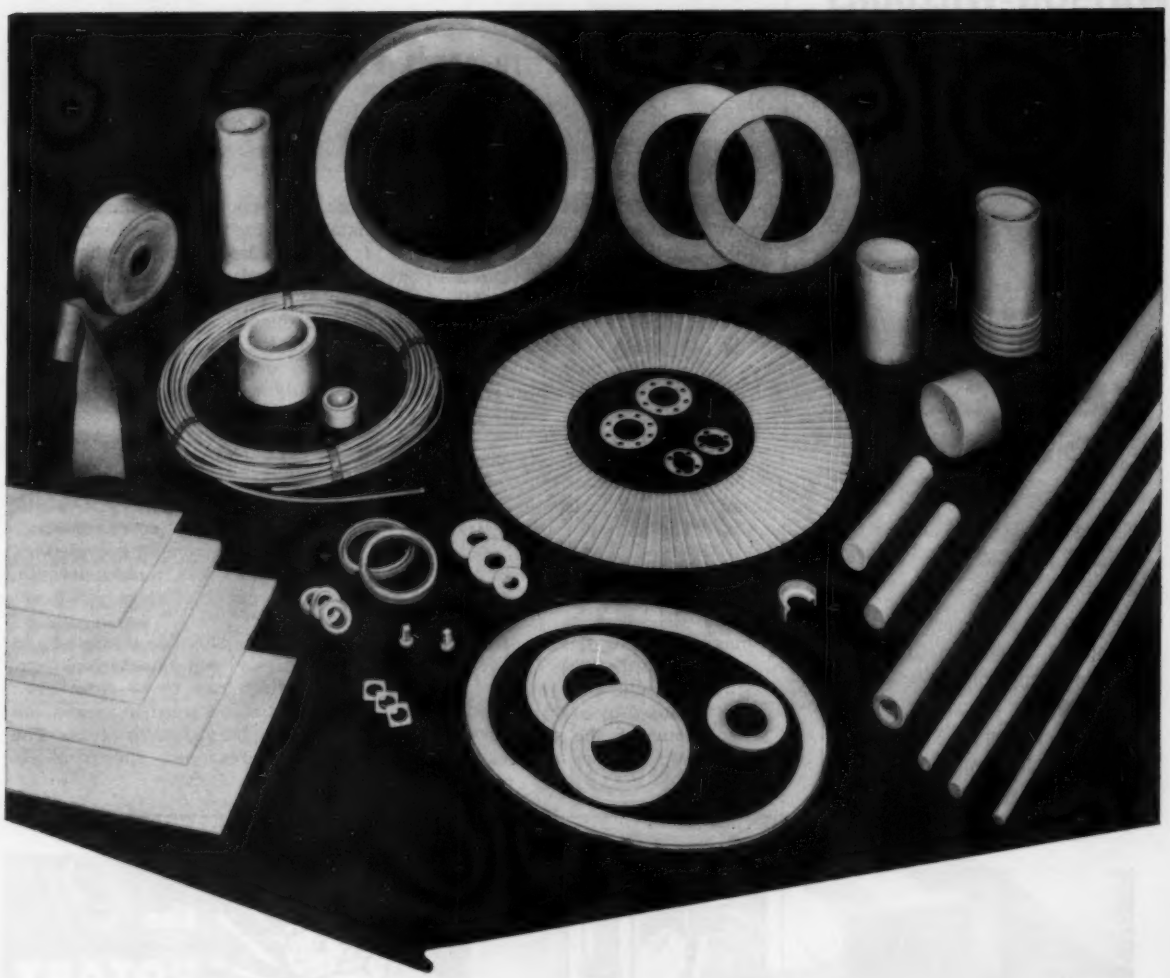
Charts like this tell
Production Time, Down Time

Only it's better than a time clock! Servis Recorders reveal every minute of busy time and down time of looms, cards, finishers, slashers and knitting machines. Circular charts are automatically recorded with fine lines for down time and wide lines for productive time. By comparing charts you can pinpoint inefficiency, plan schedules, increase production.

WITH
SERVIS RECORDER
you know exactly how much work you get from every machine.

Write for full information

The SERVICE RECORDER Co.
1015E Rockwell Ave., Cleveland 14, Ohio



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We now carry a comprehensive inventory of Nylon and Teflon* in all standard forms. In addition, we offer facilities for obtaining fast service on close tolerance fabricated parts in both materials.

Call now for a Dixie sales engineer to show you how these materials can be used efficiently and economically in your plant. There's a Dixie branch near you!

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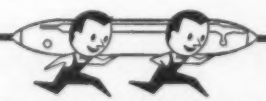
Made full thickness of resin impregnated and laminated fabric, for long life and extra rugged service.

Bring your shuttle knowledge up-to-date at Booth 128 Southern Textile Exposition, Greenville, South Carolina, the week of October 3rd. Watson-Williams whole family of shuttles will be on hand.

See the full display of Watson-Williams Picker Sticks

Our completely new facilities, in this building specially designed for the manufacture of shuttles, are now in full operation at Pinebluff, N. C. on U. S. Route 1.



THE SHUTTLE PEOPLE SINCE 1830

WATSON-WILLIAMS MFG. CO.

PINEBLUFF, N. C.

Representatives: Howard S. Pellatt, P. O. Box 73, Lincoln, Rhode Island; Sutton M. Ebert, Box 7143, Elkins Park, Philadelphia, Pa.; Watson & Desmond, Inc., Box 1954, Charlotte, N. C.; John Wyatt and Ralph Patton, Box 701, Greensboro, N. C.; Ray A. Norman, Box Drawer 779, Greenville, S. C.

"Tired" tire cords not a factor in "fatigue" failures, study shows

■ A RECENT research program has cast considerable doubt on the theory that tire fatigue failure in nylon or viscose tires is caused by a gradual loss of cord strength proportional to tire mileage.

W. G. Klein and Drs. M. M. Platt and W. J. Hamburger of Fabric Research Laboratories, Inc., Dedham, Mass., reported the results of their research on cord fatigue in fleet tested tires at a recent meeting of the Technical Association of the Pulp and Paper Industry in New York City. The paper was presented by Mr. Klein.

Fatigue failure, according to Mr. Klein, is characterized by circumferential cracks in the regions of maximum cord flexing. It has been assumed on the basis of a 1953 rayon study, he said, that this type of failure is caused by a gradual and linear weakening of the cord to a point where it becomes so weak that it ruptures—hence, presumably the name "fatigue" for the phenomenon. It has also been assumed that some types of cords weaken more quickly than others.

Consequently, the original objectives of the FRL research project were to define the mechanisms of cord fatigue and then seek ways to improve resistance to fatigue. However, in studying the cords, Mr. Klein said, "it was discovered that what has been referred to as fatigue failure is almost certainly not caused by 'fatigue' of the cords or their components. In fact, fatigue, defined as a continuous loss in cord strength, was found not to exist in significant proportions."

The FRL researchers dissected and quantitatively and qualitatively examined tires run on a New York City taxi fleet at rated pressures and loads up to 100,000 miles of use. The tires were recapped approximately

Neat Heat for Revolving Drums

The Rotary Union is trim and compact. It takes only a few minutes to install and needs no adjustments or mechanical maintenance. It permits adjustment of rolls without disconnecting or repiping. The self-adjusting and self-aligning features of the Rotary Union help maintain a perfect seal for months and years without mechanical attention of any kind. Note also the PSC Model 70T Unitrap. This compact, large capacity steam trap has trigger-action condensate discharge which assures a steady flow of hot dry steam.

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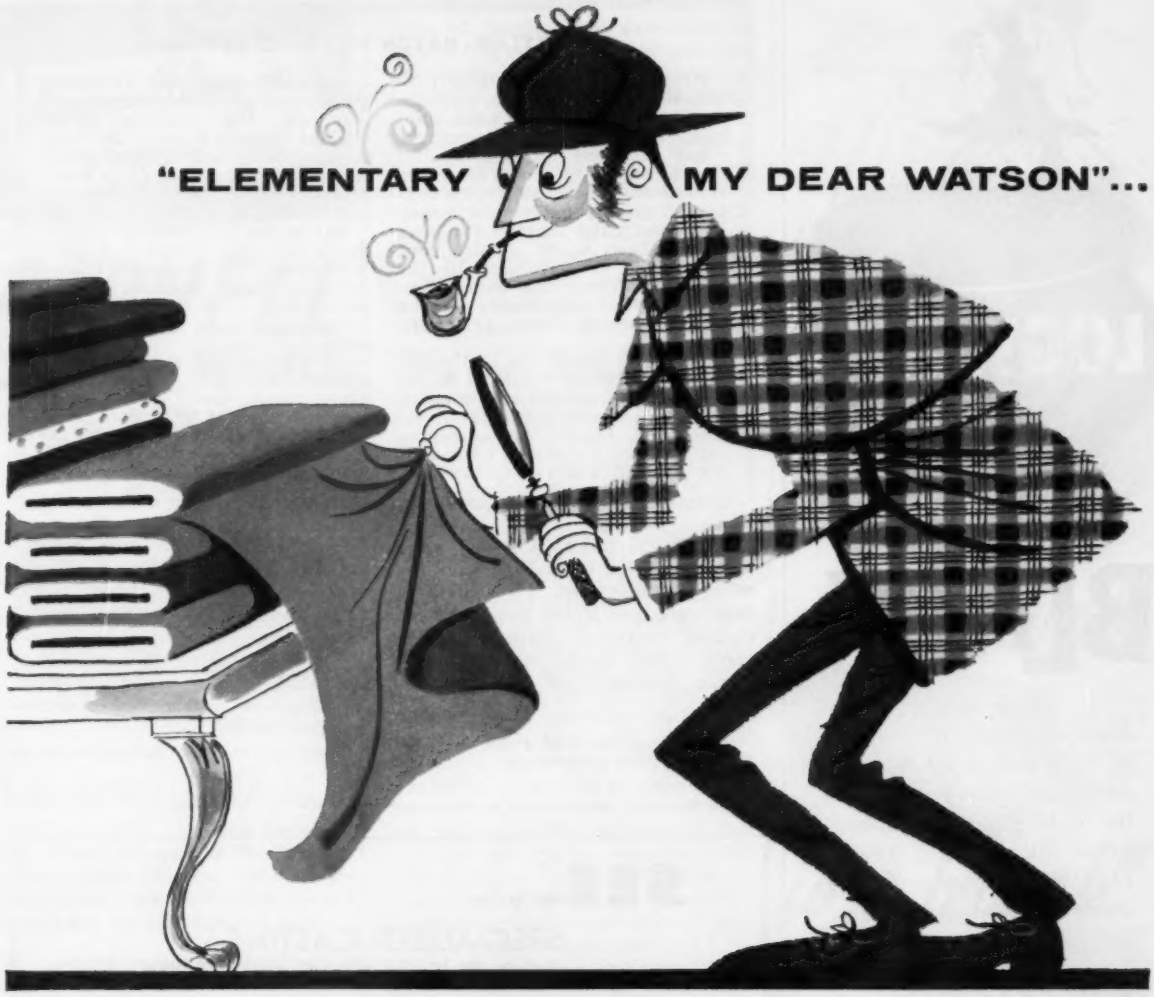

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THE NYLON - RAYON TIRE CORD BATTLE

Around the unpretentious rubber tire, which helped put the world on wheels, we have spun many sagas of industrial progress —and technical obsolescence. In the current battle, *The Value Line Investment Survey* states, the rayon and nylon producers are locked in a spectacular struggle for some $350 million worth of tire cord which will be purchased by the rubber industry this year. They are using the most deadly weapon on the business scene: price cutting.

Last year nylon, the challenger, boosted its share to almost 40 per cent of the total tire cord market. It had taken nearly half of the replacement market for passenger car tires and achieved a commanding lead in heavy-duty (aircraft, truck, and tractor) tires. This year, the publication notes, if nylon can penetrate the prestige - loaded original equipment auto tire field, its ascendancy will be established. Nylon is expected to capture much of this market, if not with the 1961 models, then with the 1962's.

But in the long run, the report points out, the consumer himself will make the decision. If the Tyrex producers can convince the public that nylon offers no material advantage, rayon could make a comeback.

Incidentally, the publication remarks: "But even if nylon displaces rayon, can it count on an indefinite rule? In France steel wire is used in tires. Some day Du Pont may have to take on U. S. Steel for the tire cord business."

every 20,000 miles. All tires were tubeless, 7.50 x 14, and made by the same manufacturer. Five hundred tires were used in the test and those studied contained three types of cords: 1100/2 Tyrex* viscose, 1650/2 Tyrex viscose, and 840/2 nylon.

*Certification mark of Tyrex, Inc., for viscose tire yarn and cord.

(Rated pressures were used, according to Mr. Klein, "to avoid accelerated degradations which might not be correlative with normal wear." FRL is now engaged in a second phase of this research consisting of evaluating similar tires run under conditions of overload and underinflation, he said.)

Tires of varying mileage—up to

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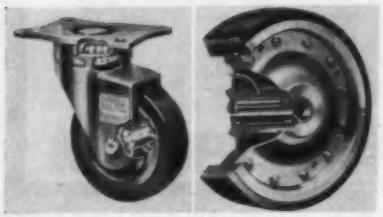

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100,000 miles—which exhibited no signs of failure were examined as were all tires which failed and exhibited the characteristics of what is called fatigue failure. Innermost ply cords were examined from the flex zone (approximately where the tread and sidewall meet), from the tread center, and from the sidewall of the tires. The greatest loss in strength occurred in the flex zone.

In the tires which had not failed (and only four—two nylon and two viscose—failed) cord strength as related to mileage exhibited a similar pattern in both the nylon and viscose tires. A fairly rapid drop in strength of flex zone cords occurred in the first 20,000 miles, a very gradual loss between 20,000 and 60,000 miles, and a slightly less gradual loss from 60,000 to 100,000 miles. It is important to note, according to Mr. Klein, that the loss in strength in both the viscose and nylon tires was not sufficient to cause failure in up to 100,000 miles of use.

The four tires that were characterized as fatigue failures were dissected and the strength of the cords tested both near and away from the point of failure. With one exception, a nylon cord, the cords from the failed tires exhibited a strength comparable to what could be expected if the tire had not failed. No attempt was made to study the cause of the lower strength nylon exception, Mr. Klein said, but he speculated that it could very well have been caused by overheating after failure and was not a factor in the failure itself.

Individual viscose and nylon filaments were similarly examined and the conclusion drawn that weakening of filaments was so insignificant that it played no role in fatigue of the cords. Only broken filaments were considered to be a factor and these occur suddenly, usually just before the time of failure.

Studies were also made on the result of mileage on impact resistance of the viscose cord only. Again, there was a rather rapid drop in impact resistance during the first 20,000 miles but essentially no further drop to 60,000 miles. (Studies were not made over 60,000 miles.) Even after the initial drop the impact resistance could be considered satisfactory, Mr. Klein said.

If so-called "fatigue" failures are not caused by lowered cord strength, what does cause them?

An answer awaits further research, according to Mr. Klein. He did note, however, that a breakdown in adhesion of the cord to the rubber may very likely be the villain, as localized bond failure frequently is present in 'fatigue' failures. Once the adhesion

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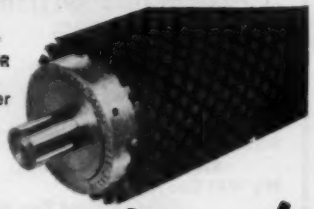

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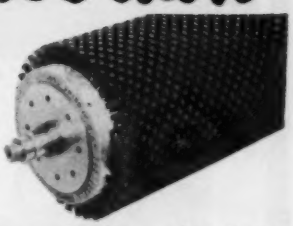

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gives way, he speculated, the cords are left to flex unrestrained and may very quickly fail, whether they have been one mile or 100,000 miles.

In summary, Mr. Klein suggested that the significance of the FRL study is that from a fatigue point of view both nylon and viscose—and perhaps some other fiber types as well—are very acceptable materials for tire cord. Fatigue is still a problem, but it is almost certainly not a problem of weakened cord, he said.

Regarding relative impact strengths another area of violently disagreeing claims, Mr. Klein said that his research because of its defined objectives offered no conclusions except that impact strength of viscose cords does not degrade severely with mileage.

The FRL research program was sponsored by American Viscose, American Enka, Buckeye Cellulose, Courtaulds (Canada), Industrial Cellulose Research Limited, Industrial Rayon, North American Rayon, and Rayonier, all companies with a primary or secondary interest in viscose.

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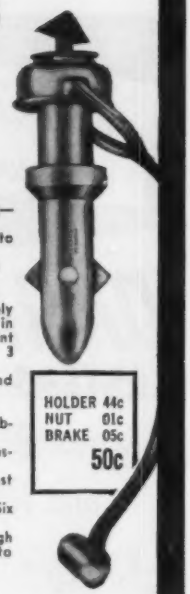

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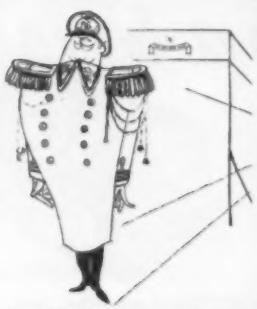

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Better tires may result from evaluation of man-made fibers

■ TIRES that provide performance and wear far beyond present levels may be evolving from research in five synthetic fibers, it was disclosed recently.

"The potential of these fibers is striking in terms of the qualities they may enable us to build into tires," said Dr. R. P. Dinsmore, vice-president in charge of research for Goodyear Tire & Rubber Co.

"For example," Dr. Dinsmore said, "one has a melting point of 600 F, compared with 482 F for the fiber used in today's premium replacement tires."

The new fibers fall under three general classifications — polyester, polyvinyl, and polyamide. So far, Dr. Dinsmore said, all of the fibers show great promise.

In the polyester group, Goodyear is studying Vycron, Terylene, and Dacron. The major advantage of the polyester fibers, according to Dr. Dinsmore, is a uniformity and di-

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mensional stability that would enhance the smooth-running properties of tires.

The polyvinyl fiber in the research program is Vinal, which has been found to have excellent resistance to separations from heat and speed and particularly good adhesive properties.

HT-1, the polyamide under study, is the fiber with the melting point of 600 F. "This heat-resistant factor will be of tremendous importance to the tire industry once we harness it into application," Dr. Dinsmore said. "We have made encouraging progress in this direction."

In any use of new fabrics for tire building, Dr. Dinsmore said, adhesion is one of the prime considerations. "Before we can use any new fabric," he explained, "we must develop an adhesive with which it can bond. Then we have a second step—making the adhesive layer bond 'on the other side' with the rubber in the tire."

Each change necessitates other changes that may extend even into the tread design of the tire, Dr. Dinsmore pointed out. "With each of the new fibers," he added, "we have found many promising leads toward solution of the adhesion problem."

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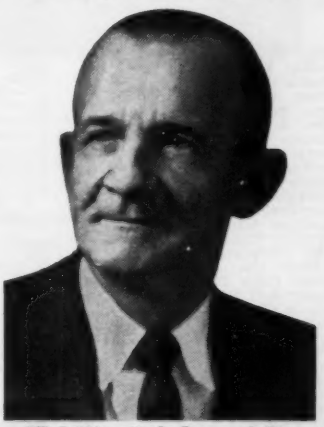

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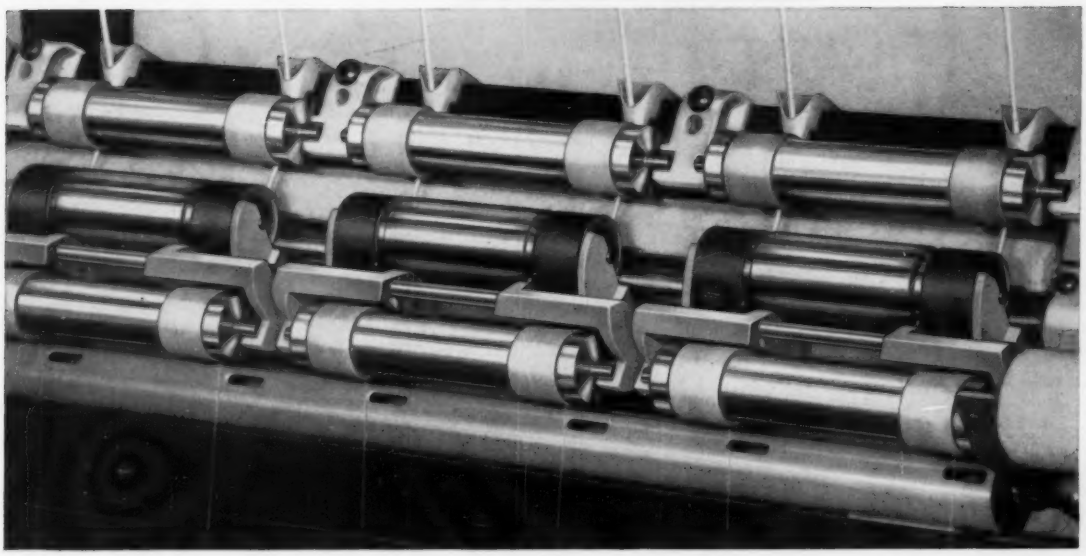

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